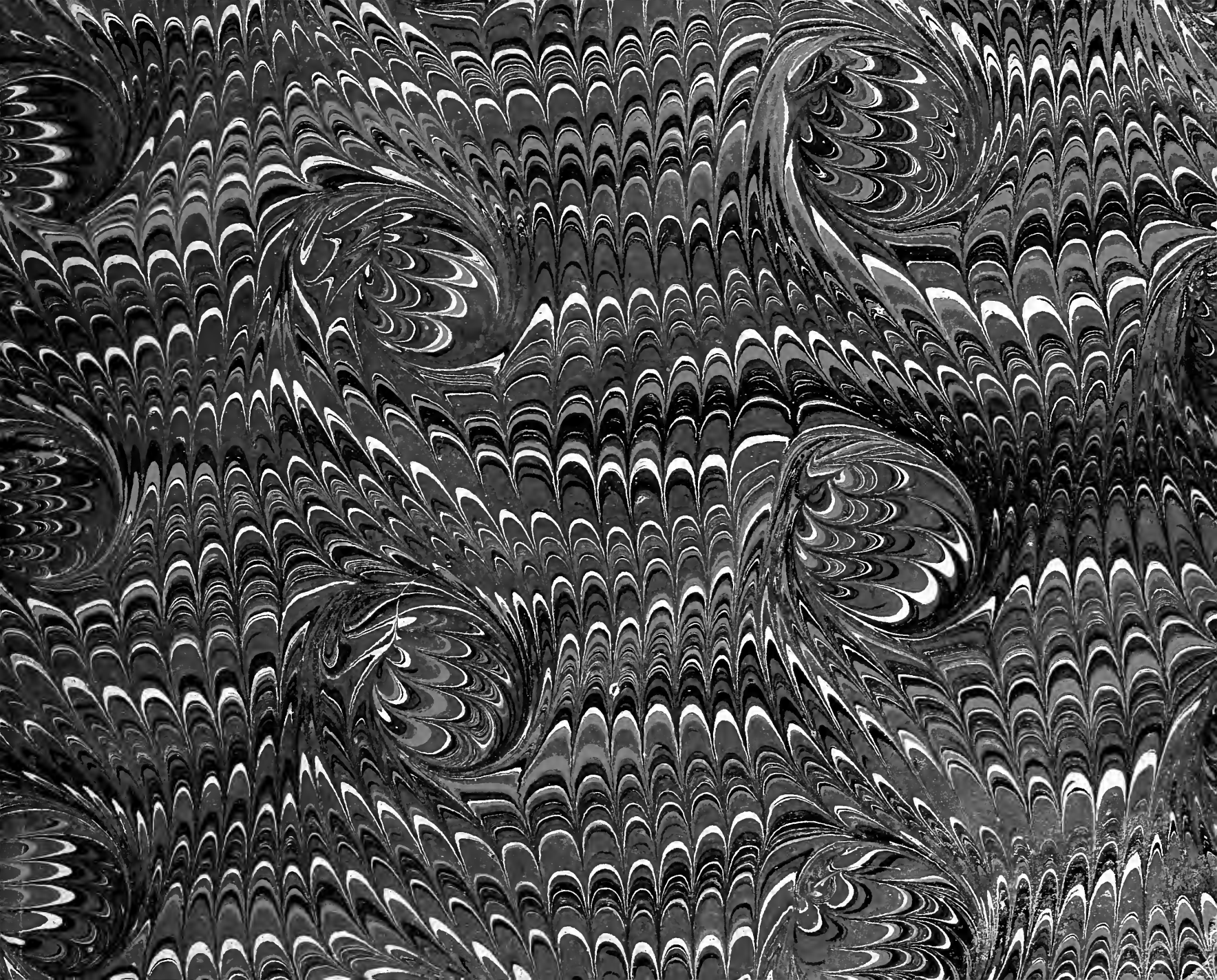


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SAMPLES  
OF THE  
WORK IN DRAWING  
OF THE STUDENTS OF  
✓  
THE INTERNATIONAL CORRESPONDENCE SCHOOLS  
" SCRANTON, PA.

---

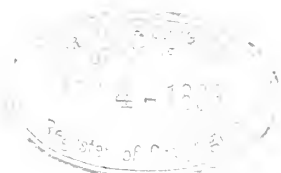
MECHANICAL DRAWING

---

THE COLLIERY ENGINEER COMPANY  
SCRANTON, PA.



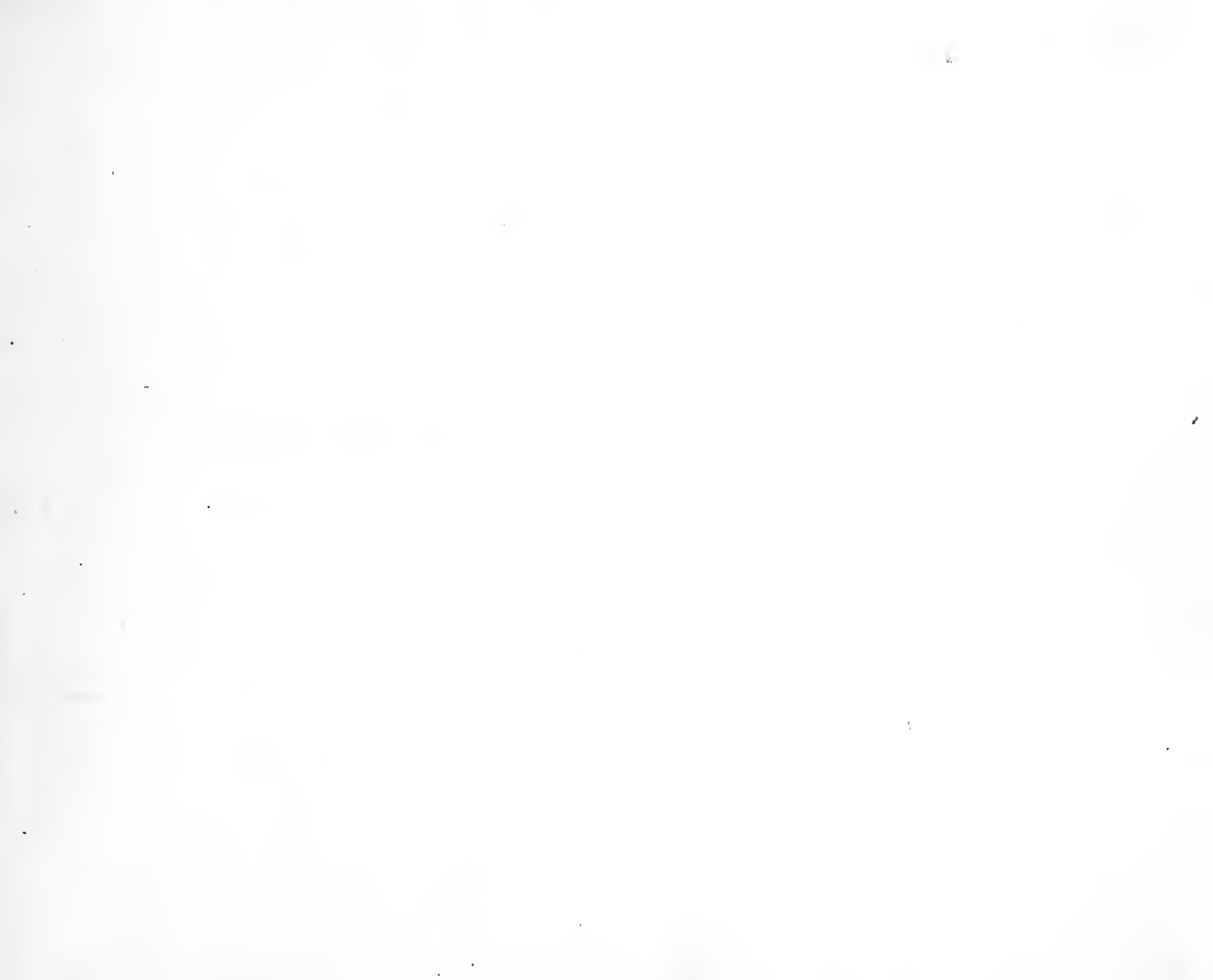
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PROBLEM 1: To bisect a straight line

PROBLEM 2: To draw a perpendicular to a straight line from a given point in that line.

CASE I.

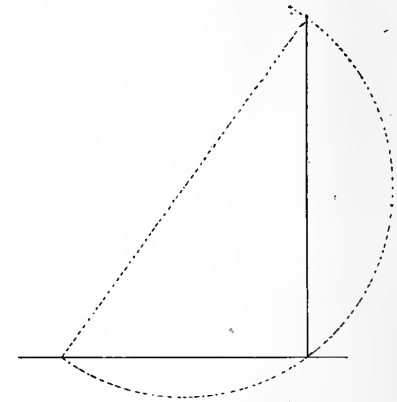
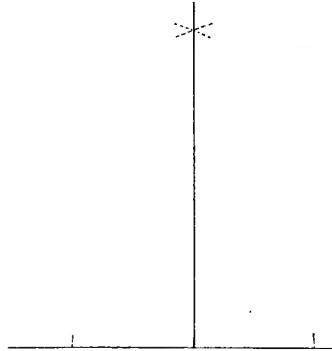
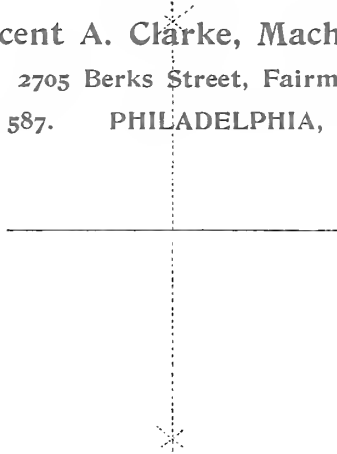
CASE II

Photograph of Plate Drawn by

Vincent A. Clarke, Machinist, Age 29,

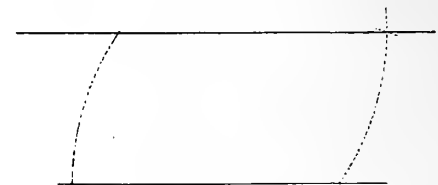
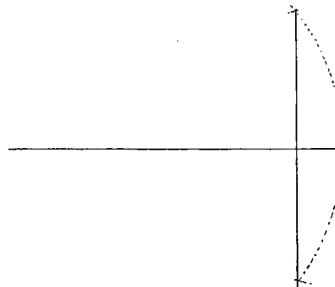
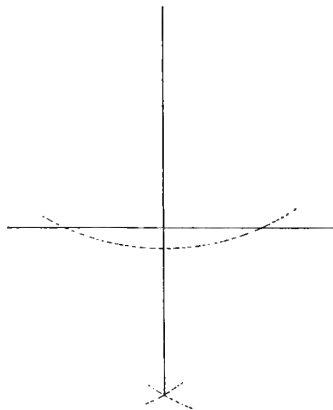
2705 Berks Street, Fairmont Station,

C. 587. PHILADELPHIA, PA.



PROBLEM 3: To draw a perpendicular to a straight line from a point without it  
CASE I.

PROBLEM 4: Through a given point to draw  
a straight line parallel to a given straight line

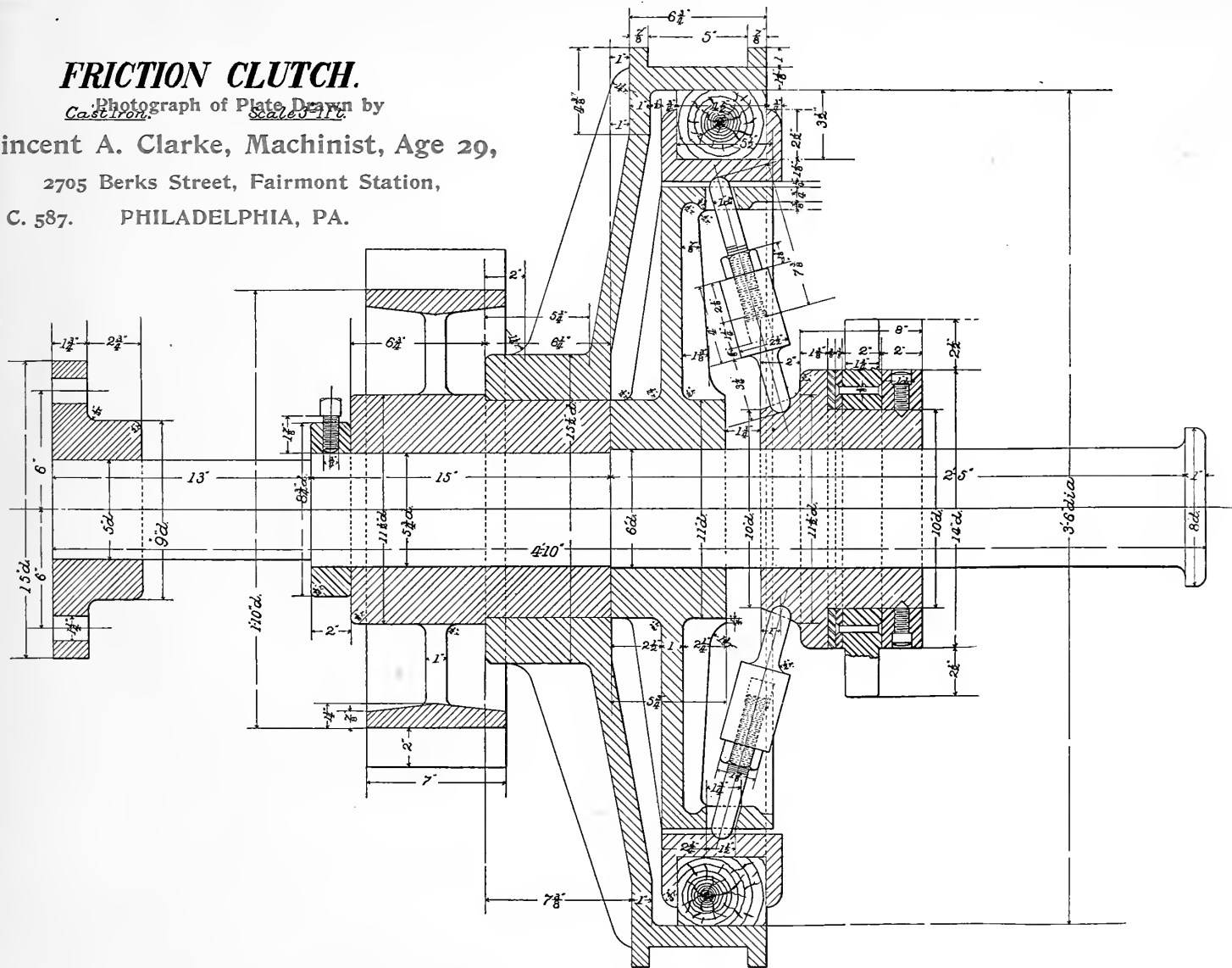




**FRICTION CLUTCH.**

Photograph of Plate Drawn by  
*Cast Iron. Scale 1/16.*

Vincent A. Clarke, Machinist, Age 29,  
 2705 Berks Street, Fairmont Station,  
 C. 587. PHILADELPHIA, PA.







# PLATE I

PROBLEM 1: To Bisect a straight line.

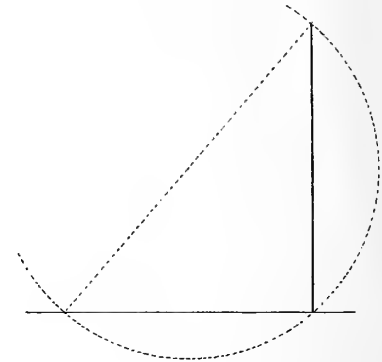
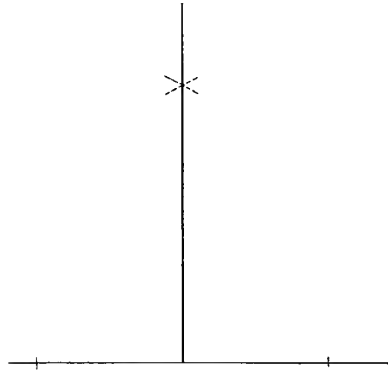
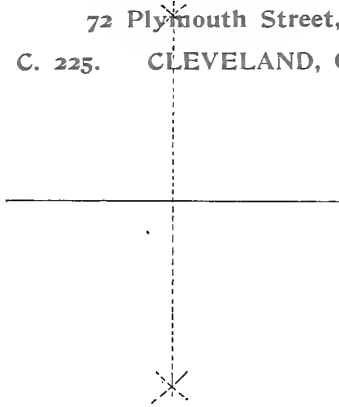
PROBLEM 2: To draw a perpendicular to a straight line from a given point in that line.  
CASE 1

Photograph of Plate Drawn by

E. R. Young, Machinist, Age 25,

72 Plymouth Street,

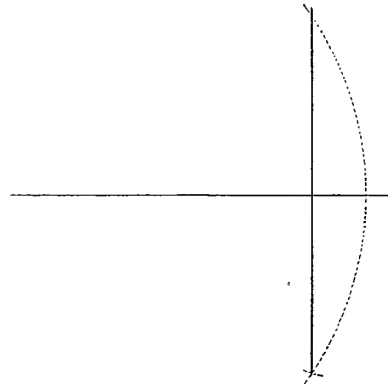
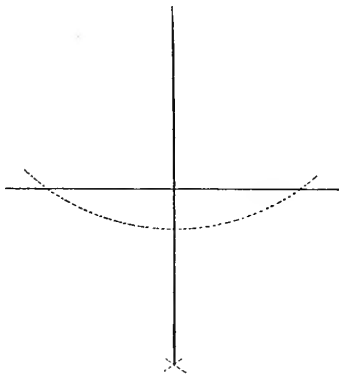
C. 225. CLEVELAND, OHIO.



PROBLEM 3: To draw a perpendicular to a straight line from a point without it  
CASE 1

CASE 2

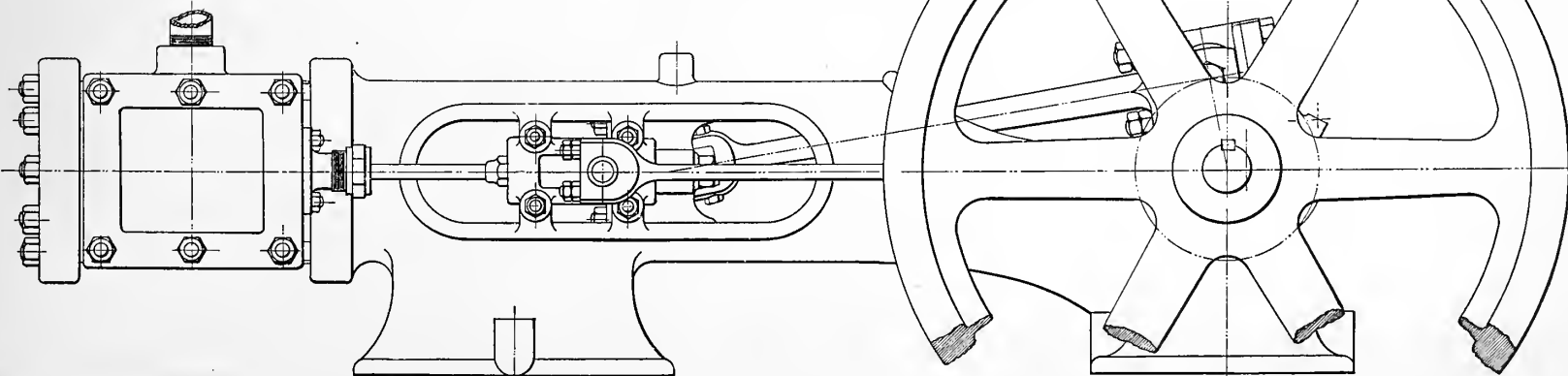
PROBLEM 4: Through a given point to draw a straight line parallel to a given straight line.



Photograph of Plate Drawn by  
E. R. Young, Machinist, Age 25,  
72 Plymouth Street,  
C. 225. CLEVELAND, OHIO.

**SIX HORSE POWER  
HORIZONTAL STEAM ENGINE.**

Scale 3" = 1 Ft









To bisect a given angle.  
CASE I.

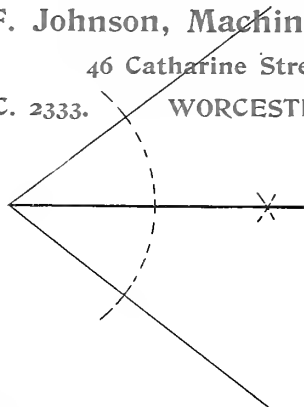
Photograph of Plate Drawn by

J. F. Johnson, Machinist, Age 28,

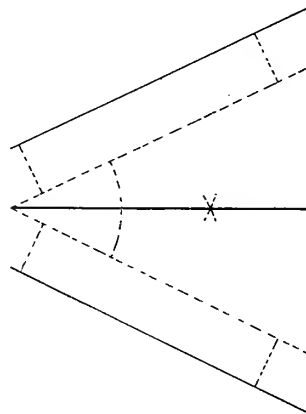
46 Catharine Street,

C. 2333.

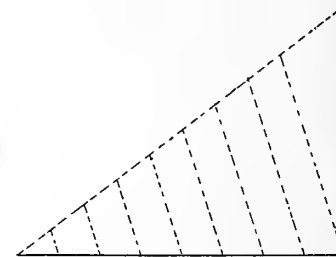
WORCESTER, MASS.



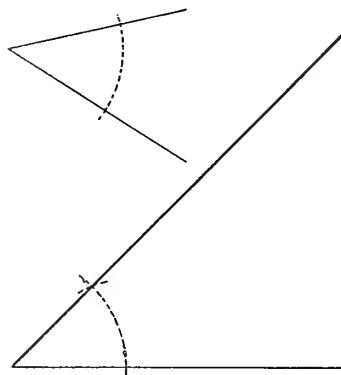
To bisect a given angle  
CASE II.



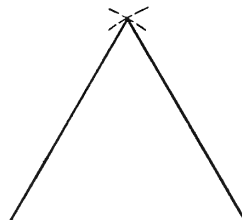
To divide a given straight line into any  
required number of equal parts:



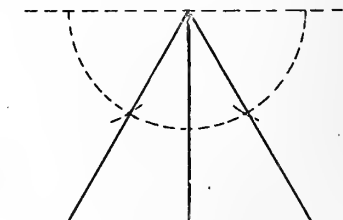
To draw a straight line through any given point  
on a given straight line to make any required angle  
with that line:



To draw an equilateral triangle, one side  
being given:



The altitude of an equilateral triangle being  
given, to draw the triangle:

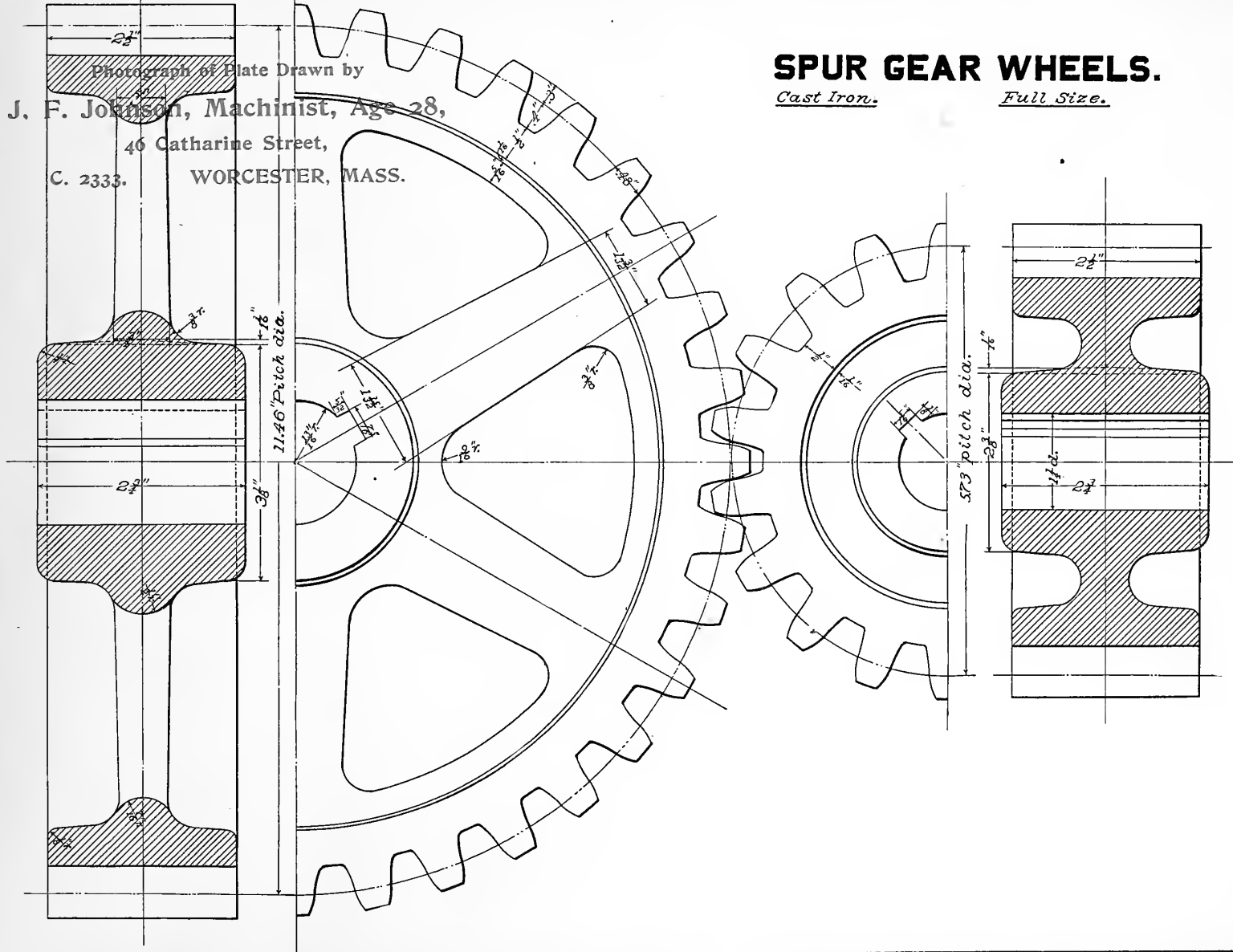


# SPUR GEAR WHEELS.

Cast Iron.

Full Size.

Photograph of Plate Drawn by  
J. F. Johnson, Machinist, Age 28,  
46 Catharine Street,  
C. 2333. WORCESTER, MASS.







PROBLEM 5. To bisect a given angle  
CASE I.

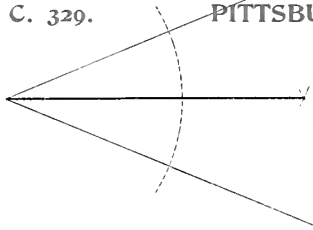
Photograph of Plate Drawn by

J. G. Phillips, Machinist, Age 29,

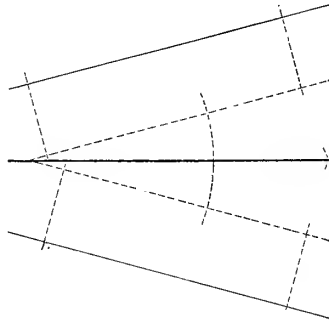
33 Eureka Street,

C. 329.

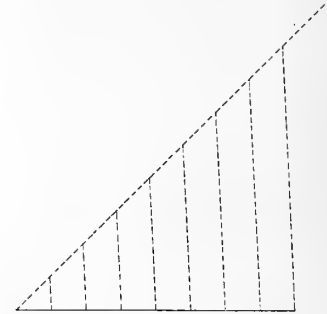
PITTSBURG, PA.



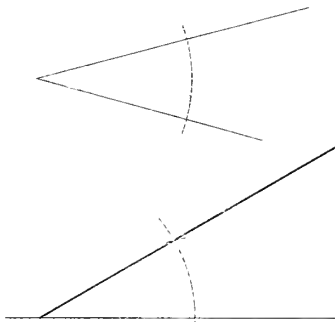
PROBLEM 5. To bisect a given angle  
CASE II.



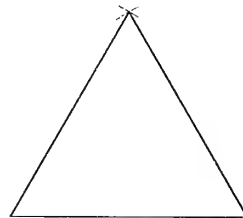
PROBLEM 6. To divide a given straight line into any required number of equal parts.



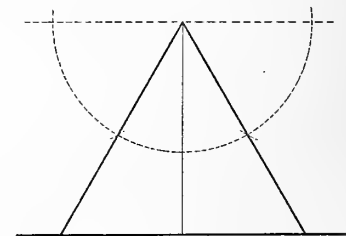
PROBLEM 7 To draw a straight line through any given point on a given straight line to make any required angle with that line.



PROBLEM 8. To draw an equilateral triangle one side being given.



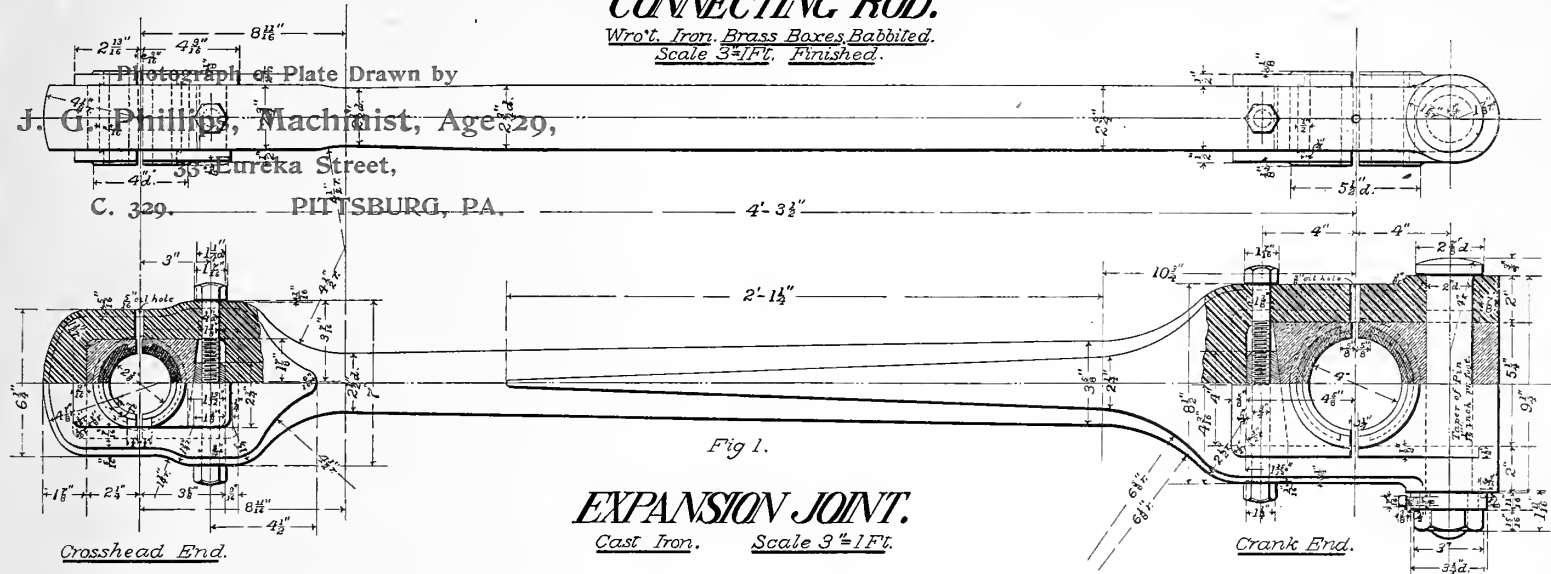
PROBLEM 9. The altitude of an equilateral triangle being given to draw the triangle.



## CONNECTING ROD.

Wro't. Iron. Brass Boxes, Babbited.  
Scale 3"=1 Ft. Finished.

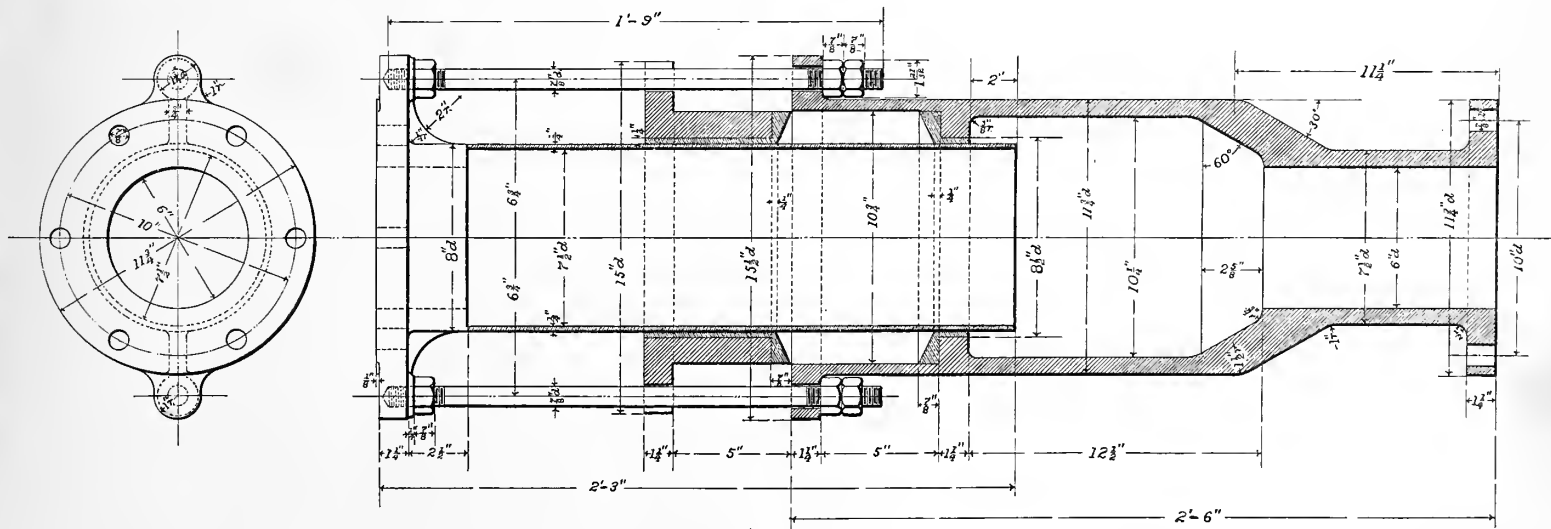
Photograph of Plate Drawn by  
J. G. Phillips, Machinist, Age 29,  
36 1/2 Eureka Street,  
C. 320. PITTSBURG, PA.



*Fig 1.*

*EXPANSION JOINT.*

Cast Iron.      Scale 3"=1 Ft.



*Fig 2.*







PLATE I.

PROBLEM 1: To bisect a straight line.

PROBLEM 2: To draw a perpendicular to a straight line from a given point in that line.  
CASE I.

CASE II.

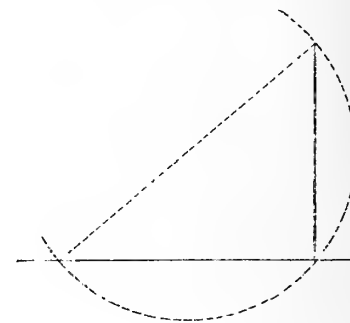
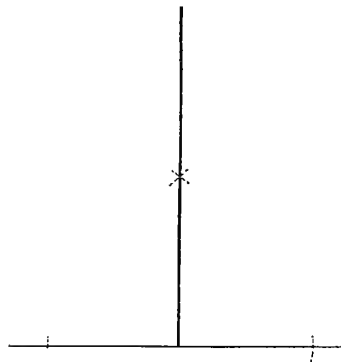
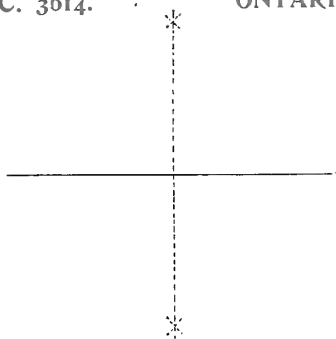
Photograph of Plate Drawn by

John Edgar, Asst. Millwright, Age 17,

BOX 205, WINDSOR,

C. 3614.

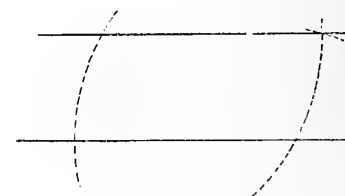
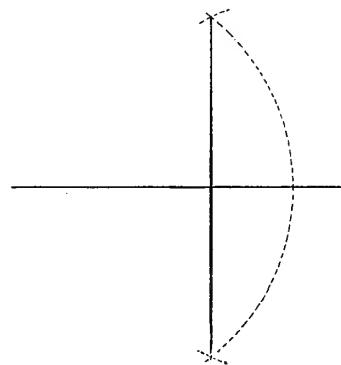
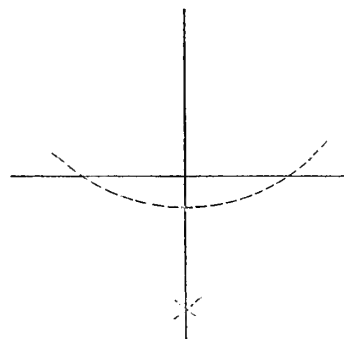
ONTARIO, CANADA.

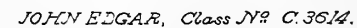


PROBLEM 3: To draw a perpendicular to a straight line from a without it.  
CASE I.

CASE II.

PROBLEM 4: Through a given point to draw a straight line parallel to a given straight line.









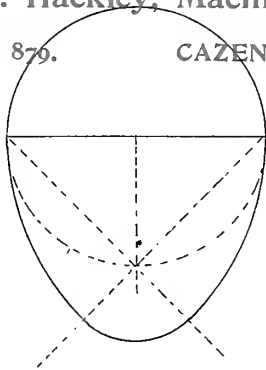
PROBLEM 22 To draw an egg shaped oval.

Photograph of Plate Drawn by

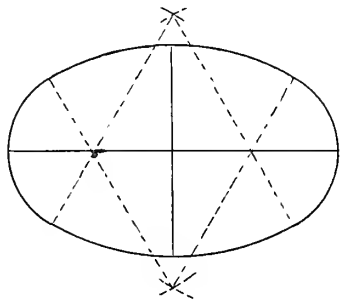
G. T. Hackley, Machinist, Age 16,

C. 879.

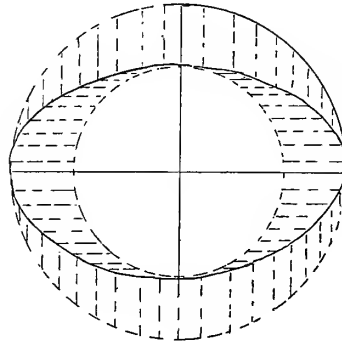
CAZENOVIA, N. Y.



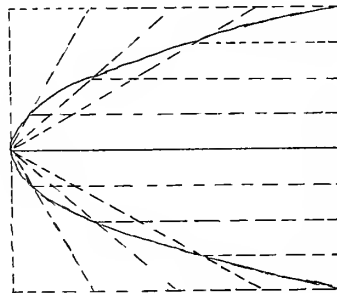
PROBLEM 24 To draw an ellipse with circular arcs.



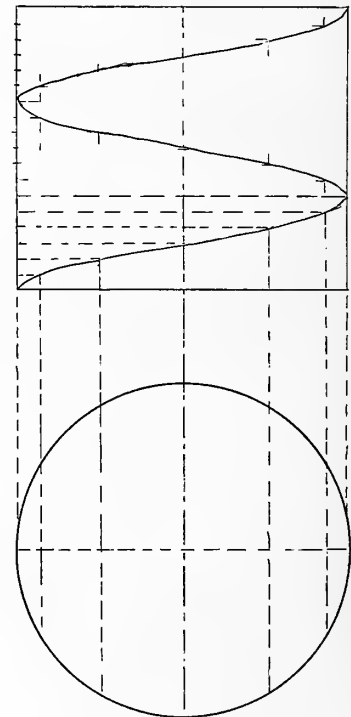
PROBLEM 23 To draw an ellipse the diameters being given.



PROBLEM 25 To draw a parabola the axis and longest double ordinate being given.



PROBLEM 26 To draw a helix, the pitch and the diameter being given



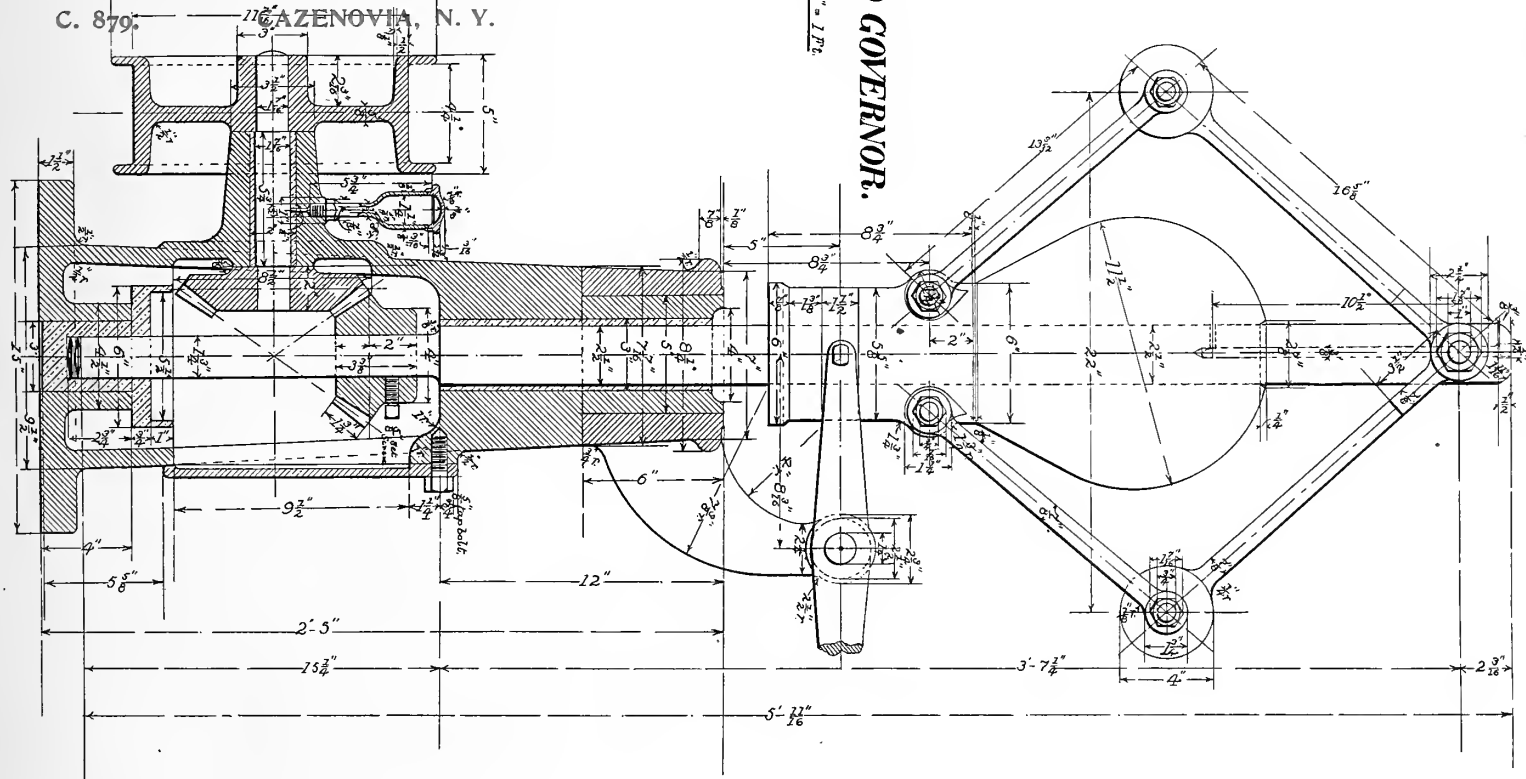
WEIGHTED GOVERNOR.

Scale 3" = 1 Ft.

Photograph of Plate Drawn by

G. T. Hackley, Machinist, Age 16,

C. 879. AZENOVIA, N. Y.



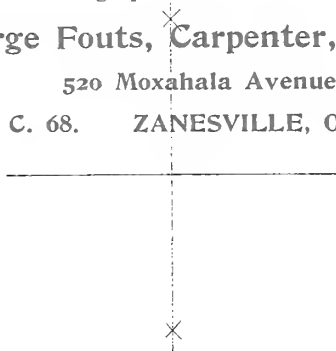




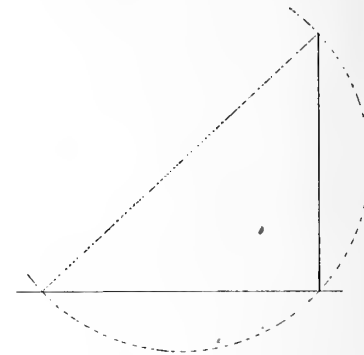
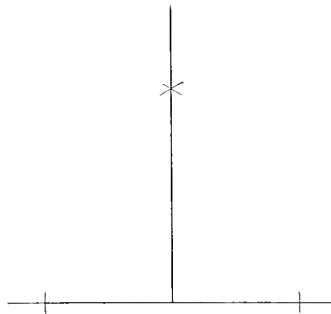


PROBLEM 1: To bisect a straight line

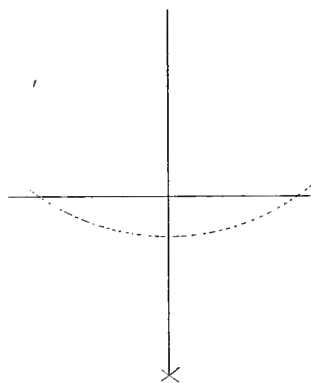
Photograph of Plate Drawn by  
George Fouts, Carpenter, Age 30,  
520 Moxahala Avenue,  
C. 68. ZANESVILLE, OHIO.



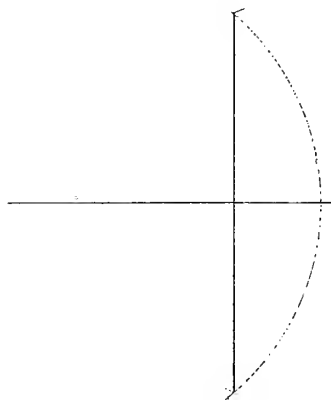
PROBLEM 2: To draw a perpendicular to a straight line from a given point in that line  
CASE I.



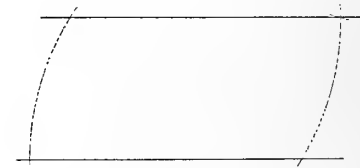
PROBLEM 3: To draw a perpendicular to a straight line from a given point without it  
CASE I.



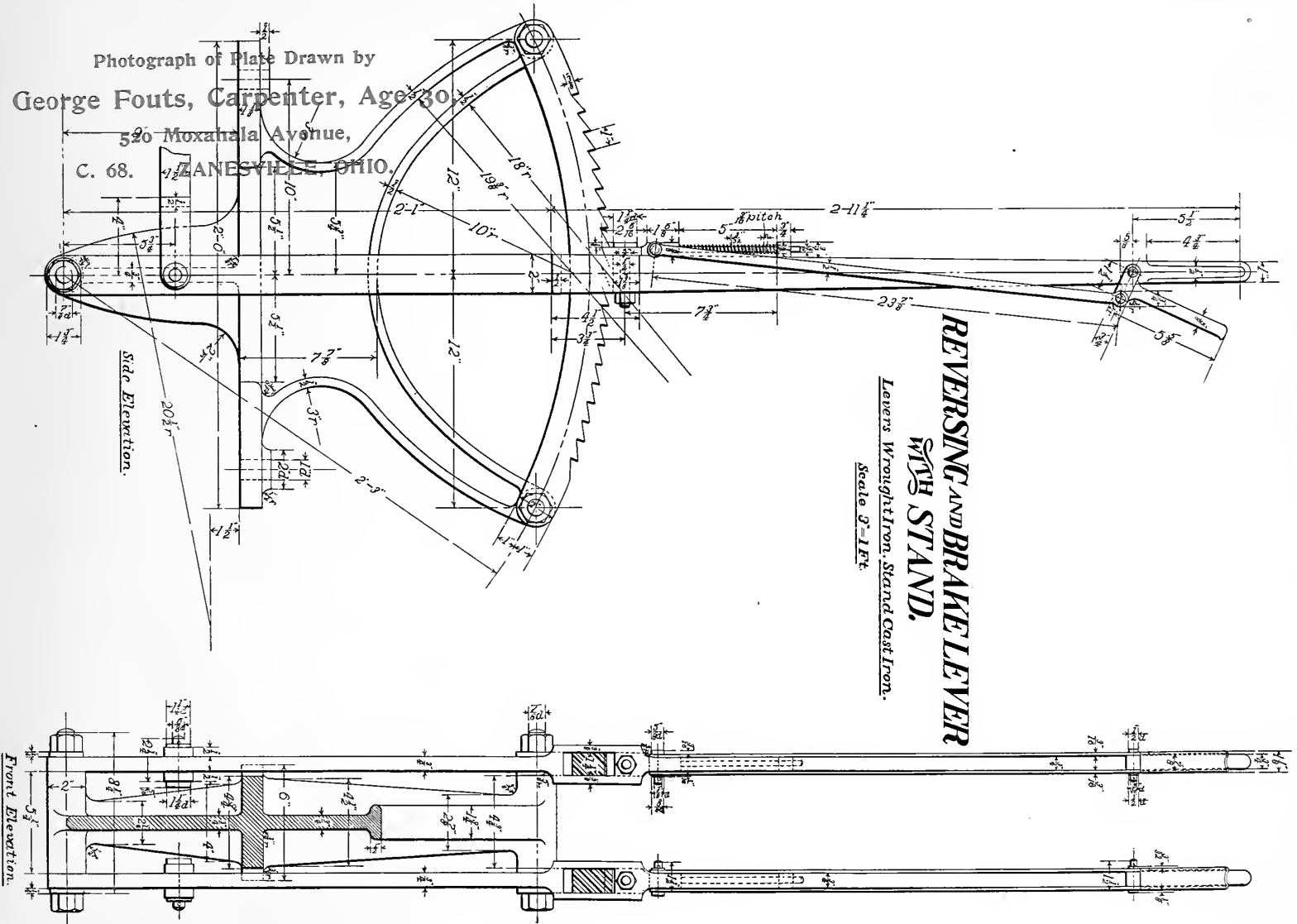
CASE II.



PROBLEM 4: Through a given point to draw a straight line parallel to a given straight line



Photograph of Plate Drawn by  
George Fouts, Carpenter, Age 30,  
520 Moxahala Avenue,  
C. 68. LANESVILLE, OHIO.







PROBLEM 1: To bisect a straight line.

PROBLEM 2: To draw a perpendicular to a straight line from a given point in that line.  
CASE I.

CASE II.

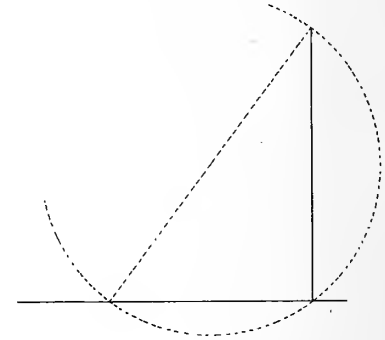
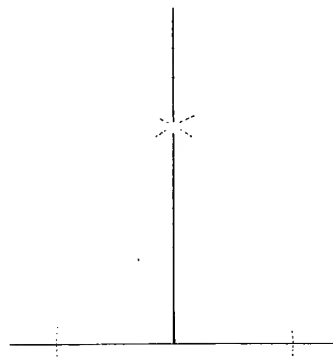
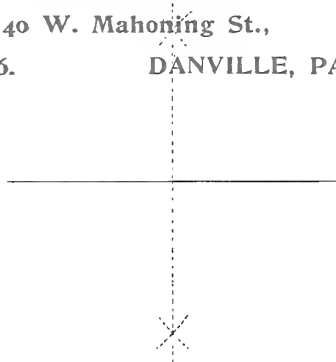
Photograph of Plate Drawn by

C. W. Johnson, Age 19,

140 W. Mahoning St.,

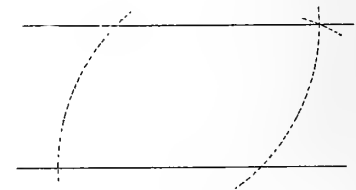
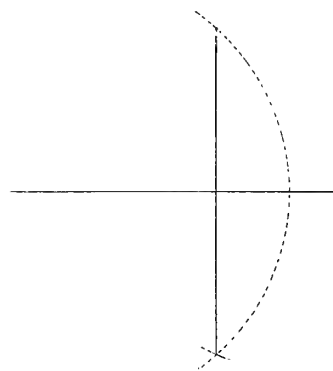
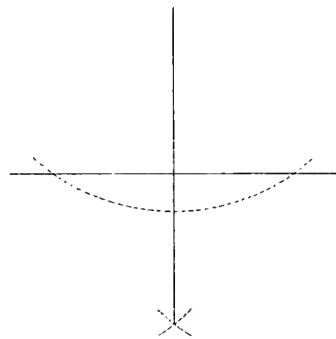
C. 2666.

DANVILLE, PA.



PROBLEM 3: To draw a perpendicular to a straight line from a point without it  
CASE I.

PROBLEM 4: Through a given point to draw a straight line parallel to a given straight line.





# BOILER SETTING.

Scale  $\frac{3}{8}'' = 1' - 0''$ .

Photograph of Plate Drawn by  
C. W. Johnson, Age 19,  
140 W. Mahoning St.,  
DANVILLE, PA.  
C. 2666.

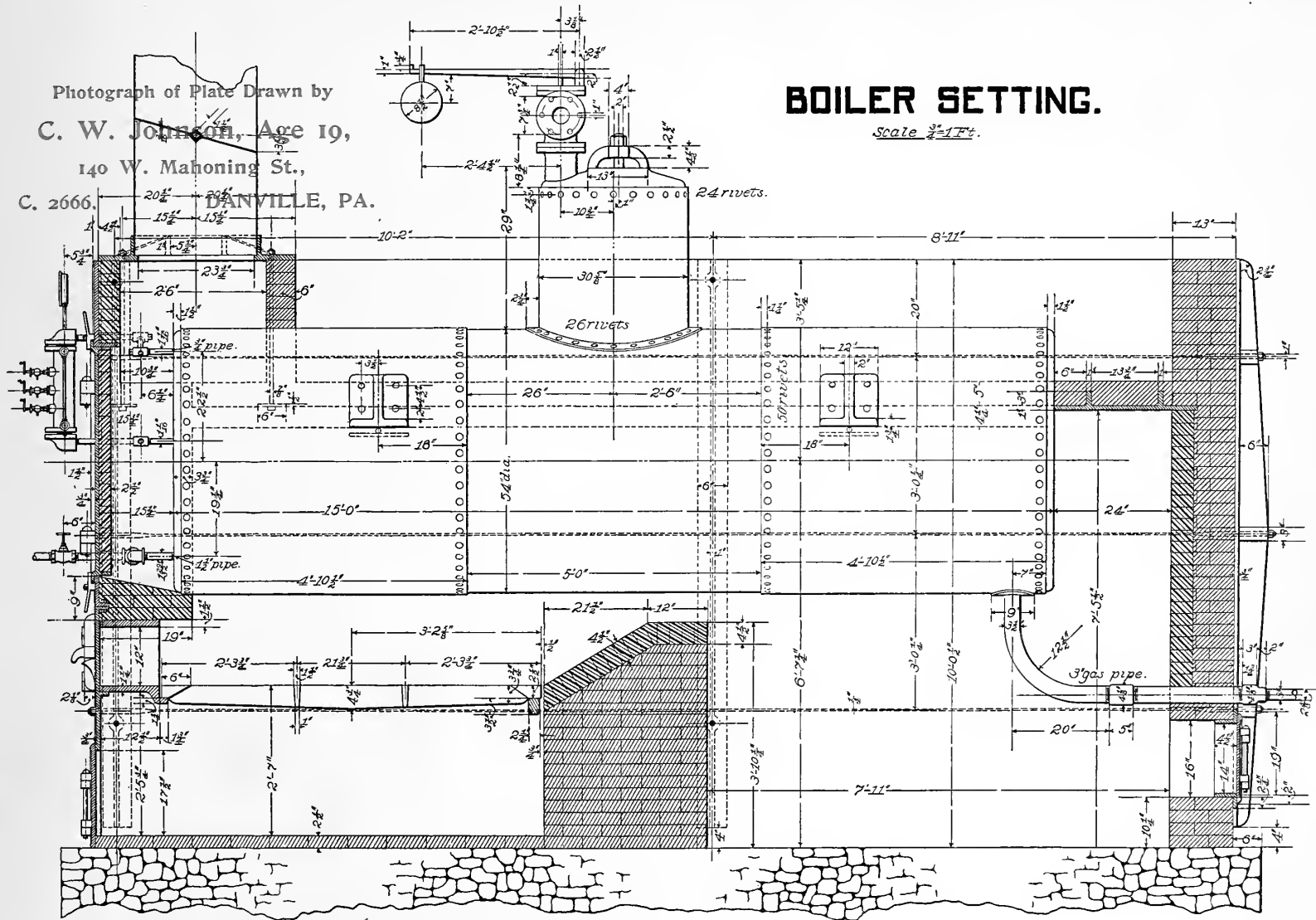






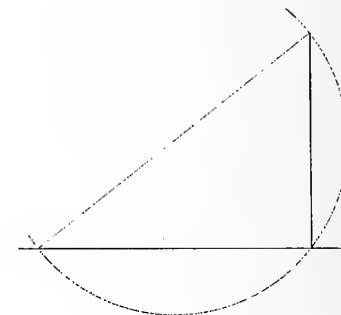
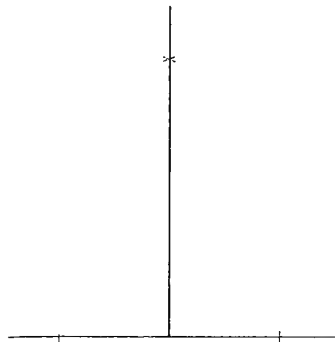
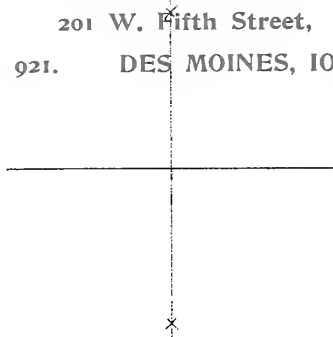
PLATE I

PROBLEM 1: To bisect a straight line.

PROBLEM 2: To draw a perpendicular to a straight line from a given point in that line.  
CASE I.

CASE II.

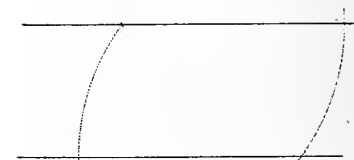
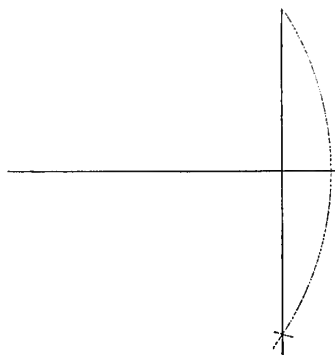
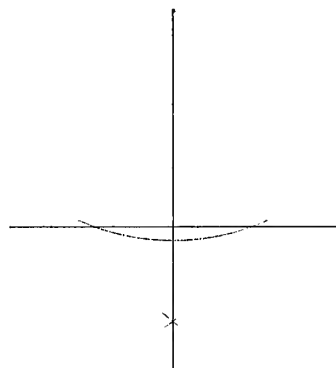
Photograph of Plate Drawn by  
James Barels, Printer, Age 24,  
201 W. Fifth Street,  
C. 921. DES MOINES, IOWA.



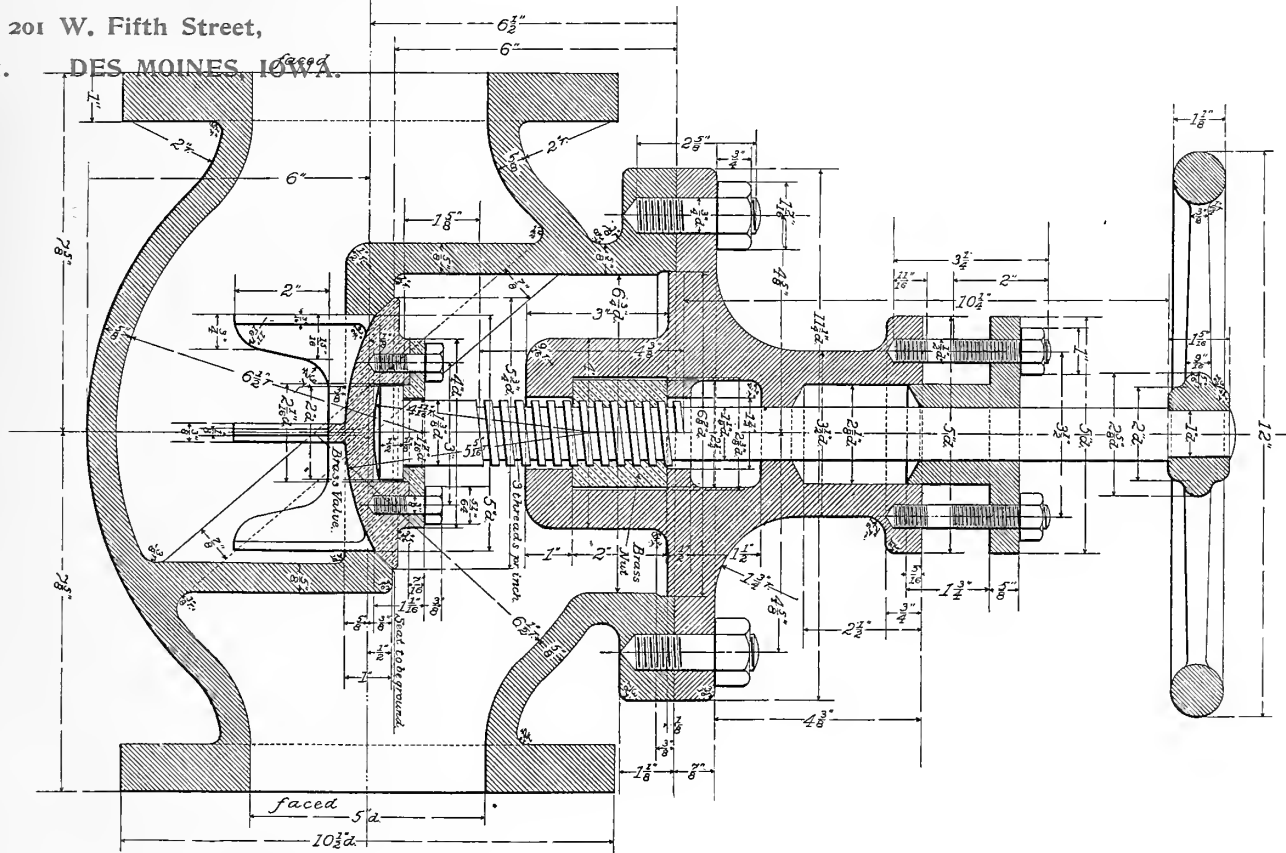
PROBLEM 3 To draw a perpendicular to a straight line from a point without it.  
CASE I.

CASE II.

PROBLEM 4 Through a given point to draw a straight line parallel to a given straight line.



Photograph of Plate Drawn by  
James Barels, Printer, Age 24,  
201 W. Fifth Street,  
C. 921. DES MOINES, IOWA.



**5 INCH GLOBE VALVE.**  
Cast Iron  
Half Size





PROBLEM I: To bisect a given straight line

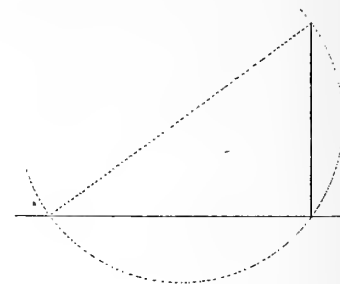
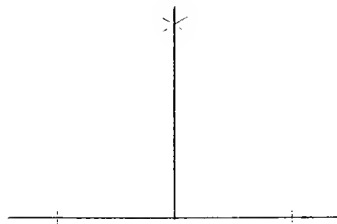
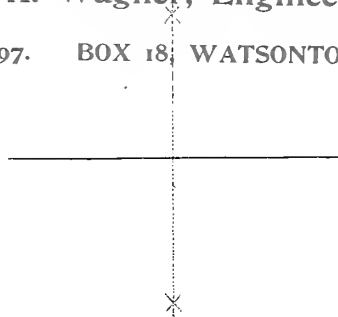
PROBLEM To draw a perpendicular to a straight line from a given point in that line.  
CASE I

CASE II

Photograph of Plate Drawn by

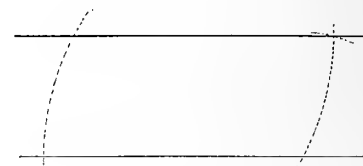
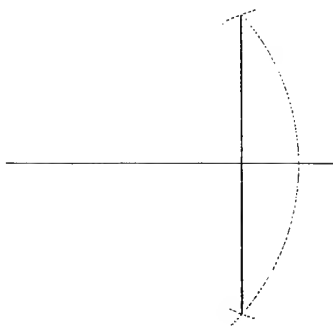
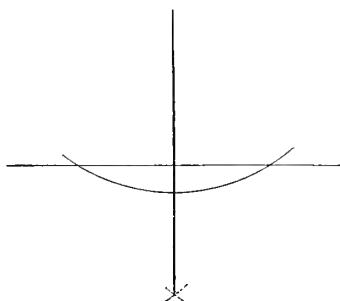
Geo. K. Wagner, Engineer, Age 22,

C. 97. BOX 18, WATSON TOWN, PA.



PROBLEM 3: To draw a perpendicular to a straight line from a given point without it,  
CASE I.

PROBLEM 4: Through a given point to draw a straight line parallel to a given straight line





# PLATE XXI.

*Large Wheel*

*Pitch dia 63"*

*Pitch Photograph of Plate Drawn by*

*20 teeth*

**Geo. K. Wagner, Engineer, Age 22,**

*Pinion*

*Pitch dia 10 1/2"*

*Pitch 1"*

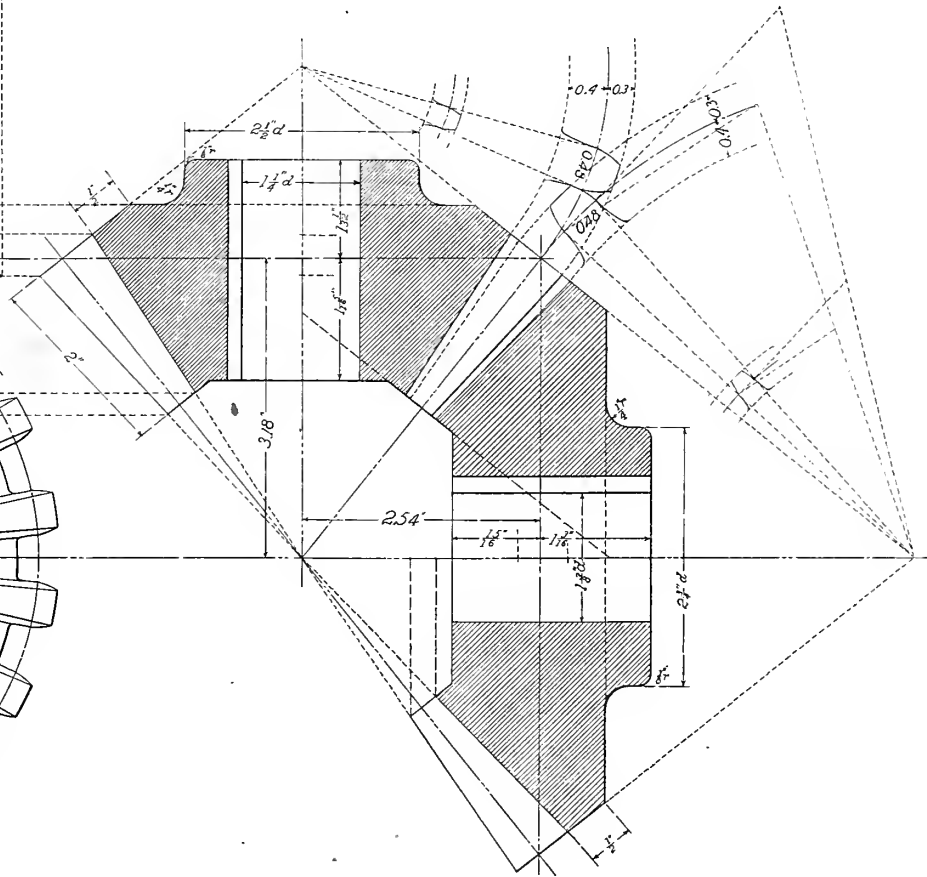
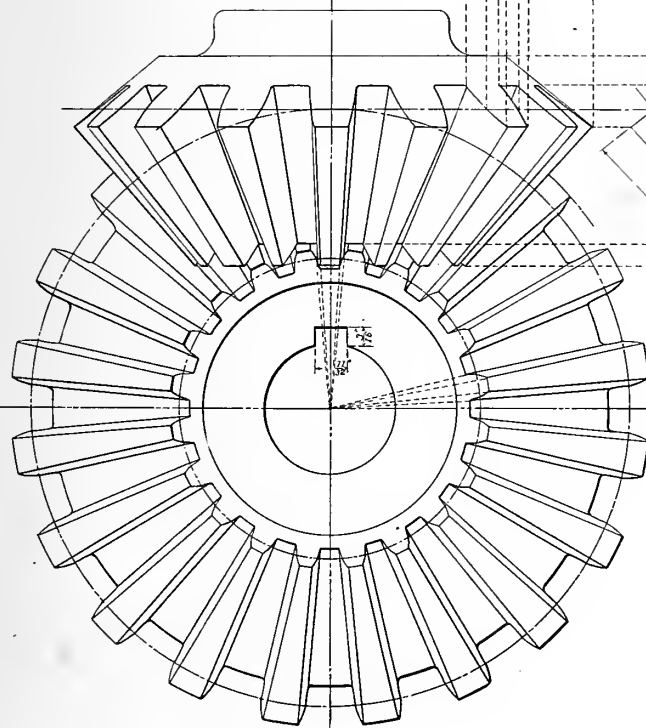
*16 teeth*

**BOX 18, WATSON TOWN, PA.**

## BEVEL GEARS.

*Cast Iron.*

*Full Size.*



MARCH 31 1897.

GEORGE K. WAGNER. CLASS N<sup>o</sup> C 97.





Photograph of Plate Drawn by  
**O. S. PIKE, Farmer, Age 25,**  
 C. 1548. NEW LISBON, OHIO.

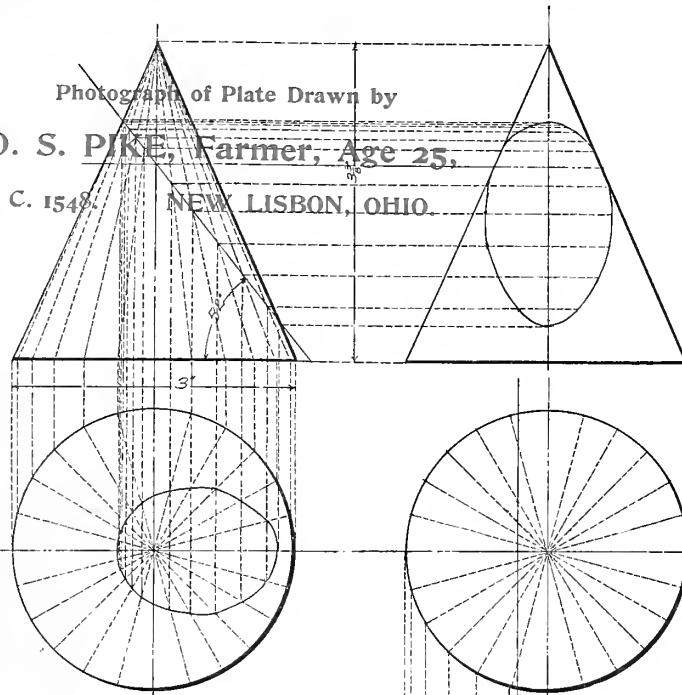


Fig. 1.

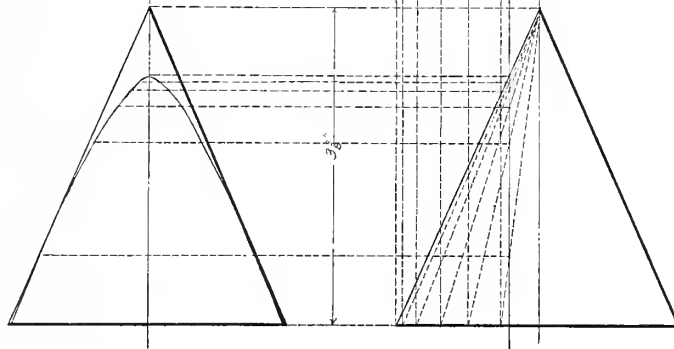


Fig. 3.

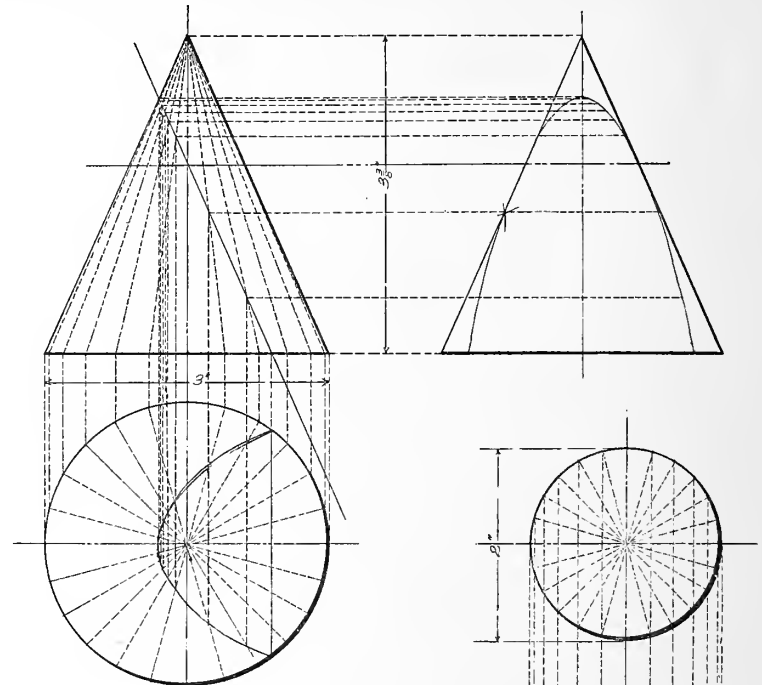


Fig. 2.

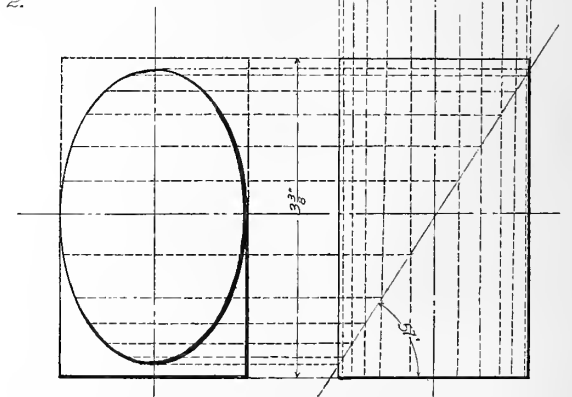


Fig. 4.

# PLATE XXIV.

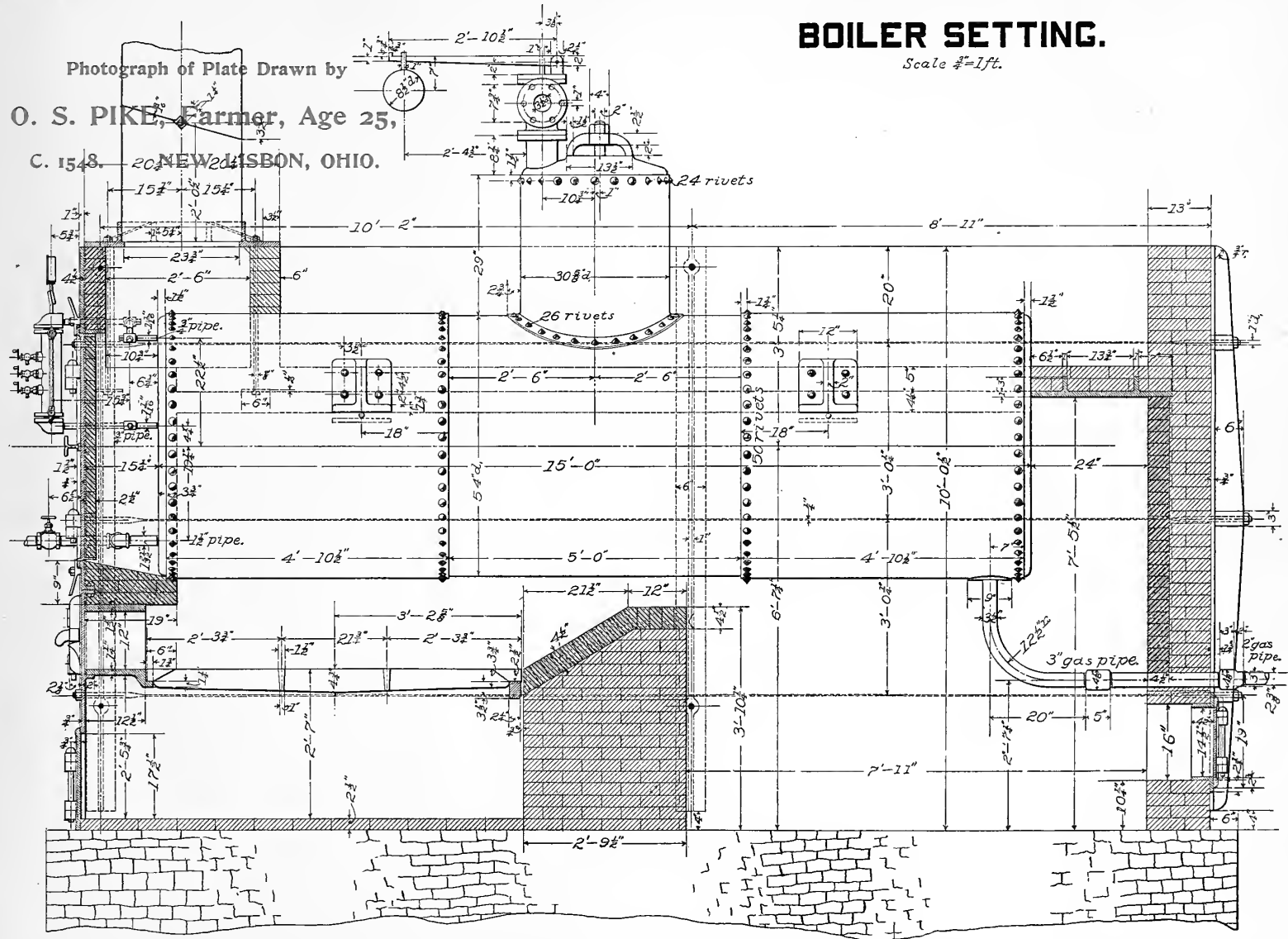
## BOILER SETTING.

Scale  $\frac{1}{4}$ " = 1 ft.

Photograph of Plate Drawn by

O. S. PIKE, Farmer, Age 25,

C. 1548. NEW LISBON, OHIO.



MARCH 15, 1896.

O. S. PIKE CLASS No C 1548.





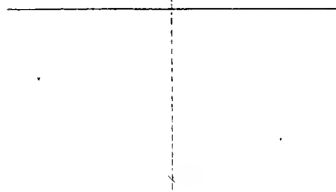
PLATE I

PROBLEM 1: To bisect a straight line

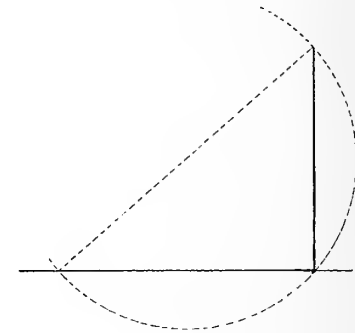
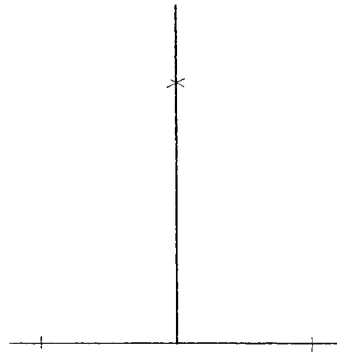
Photograph of Plate Drawn by

**Fred. Kuhlmann, Machinist, Age 31.**

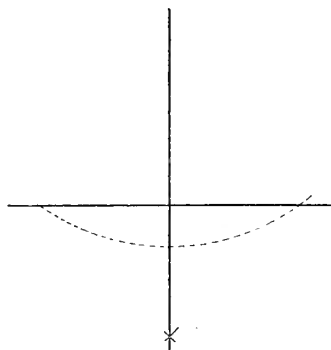
880 N. Campbell Avenue,  
C. 2597. CHICAGO, ILL.



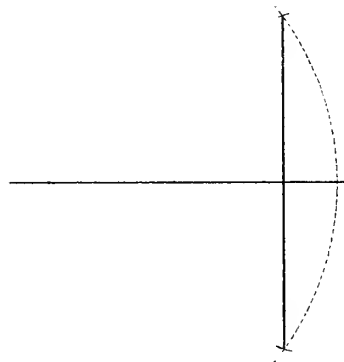
PROBLEM 2: To draw a perpendicular to a straight line from a given point in that line.  
CASE I.



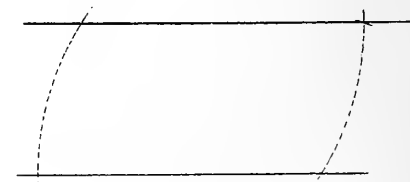
PROBLEM 3: To draw a perpendicular to a straight line from a point without it.  
CASE I.



CASE II.



PROBLEM 4: Through a given point to draw a straight line parallel to a given straight line

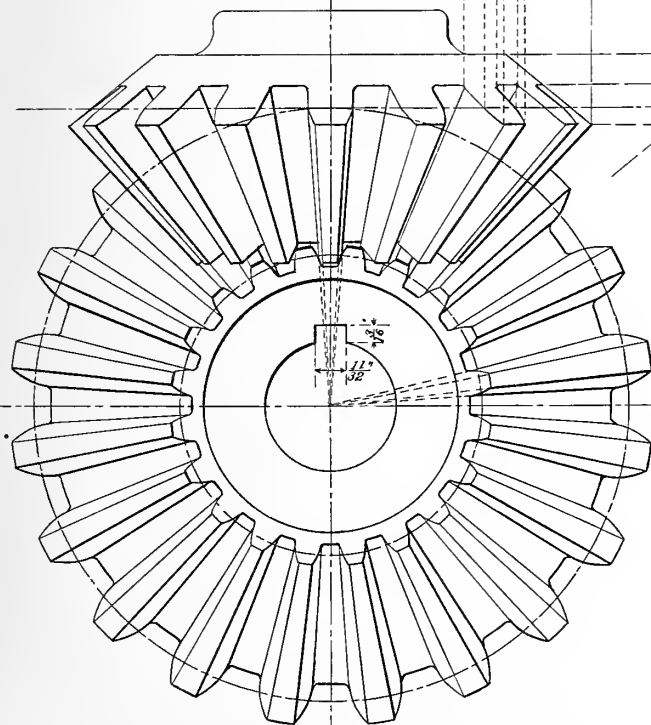




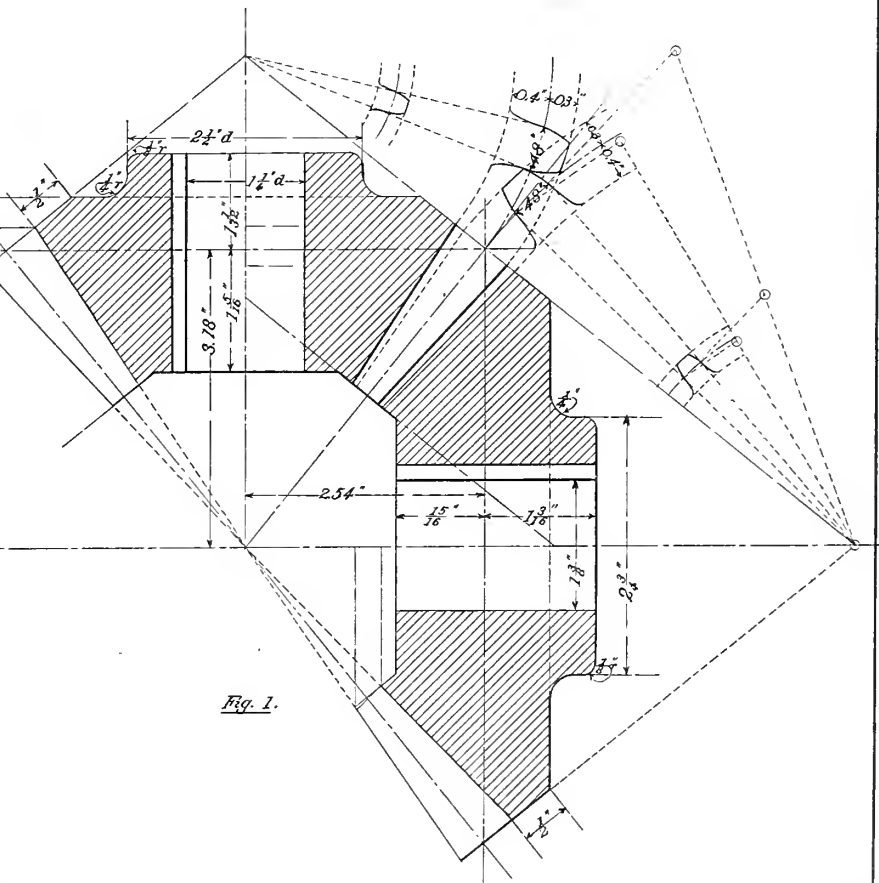
# BEVEL GEARS.

*Cast Iron. Full Size.*

Photograph of Plate Drawn by  
**Fred Kuhlmann, Machinist, Age 31,**  
 880 N. Campbell Avenue,  
 CHICAGO, ILL.  
 LARGE WHEEL  
 Pitch dia 6.37"  
 Pitch 1"  
 20 Teeth  
 PINION.  
 Pitch dia 5.09"  
 Pitch 1"  
 16 Teeth.



*Fig. 2.*







PROBLEM 1: To bisect a straight line

PROBLEM 2: To draw a perpendicular to a straight line from a given point in that line

CASE I.

CASE II.

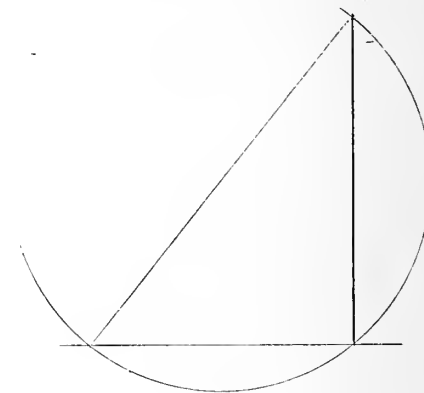
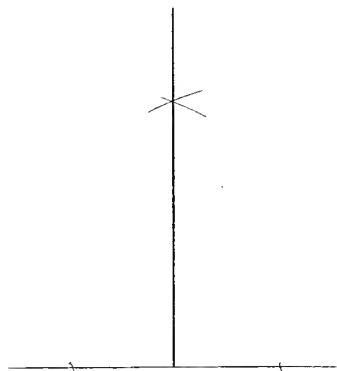
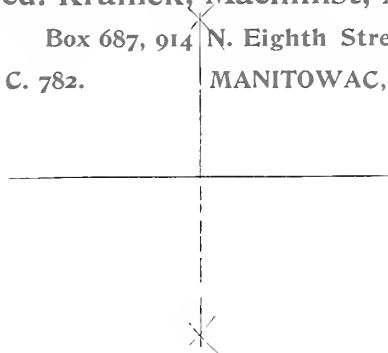
Photograph of Plate Drawn by

Fred. Krainek, Machinist, Age 20,

Box 687, 914 N. Eighth Street,

C. 782.

MANITOWAC, WIS.

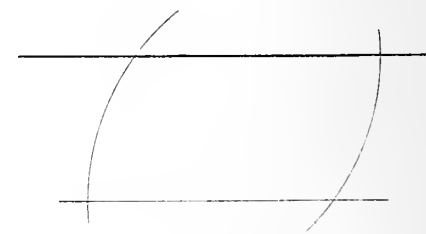
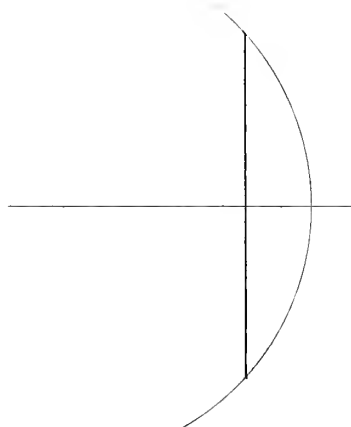
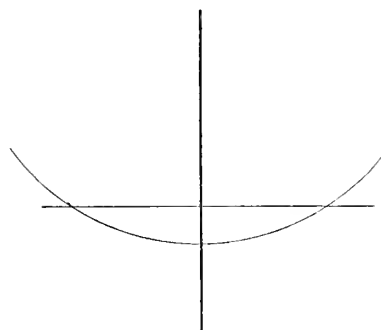


PROBLEM 3: To draw a perpendicular to a point without it

CASE I.

CASE II.

PROBLEM 4: Through a given point to draw a straight line parallel to a given straight line



MAY 18, 1894.

Fred Krainek, CLASS, No. 782.

Fred. Krainek, Machinist, Age 20,

782. MANITOWAC, WIS.

Scale 3"=1ft.

$1\frac{1}{4}$  gas pipe.





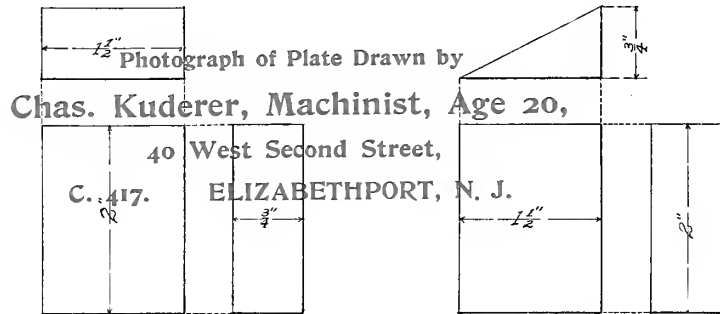


Fig. 1.

Fig. 2.

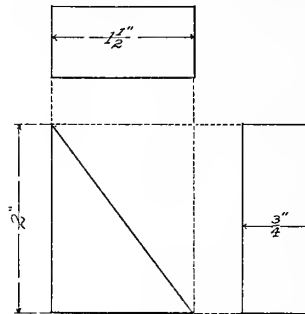


Fig. 3.

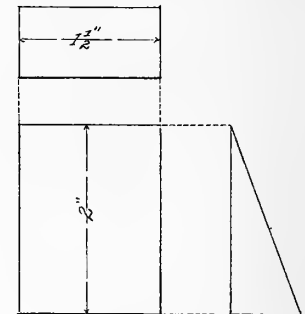


Fig. 4.

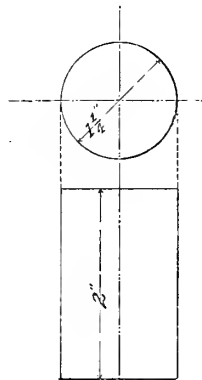


Fig. 5.

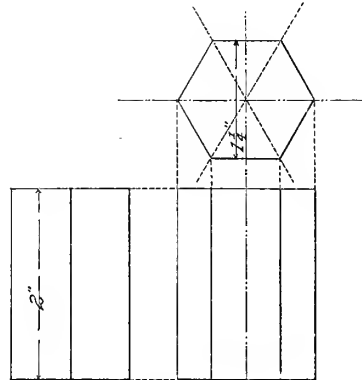


Fig. 6.

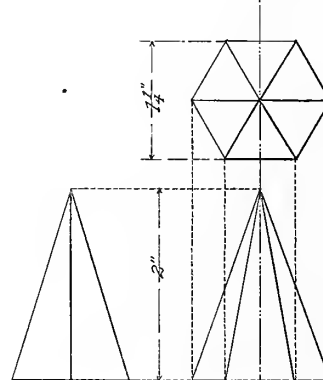


Fig. 7.

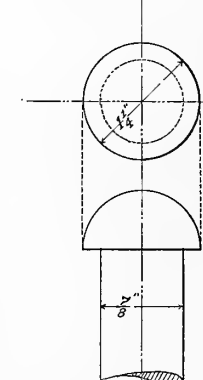


Fig. 8.

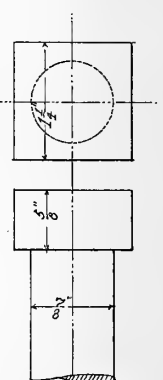


Fig. 9.

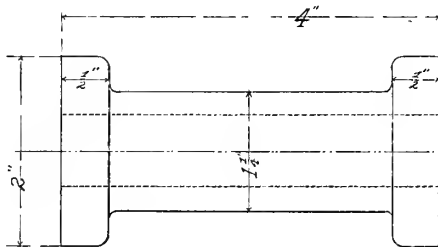


Fig. 10.

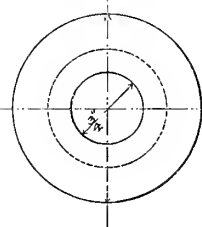


Fig. 11.

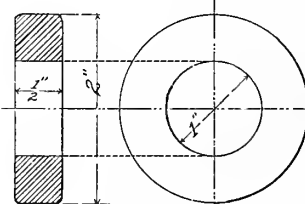
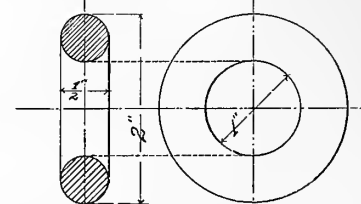


Fig. 12.





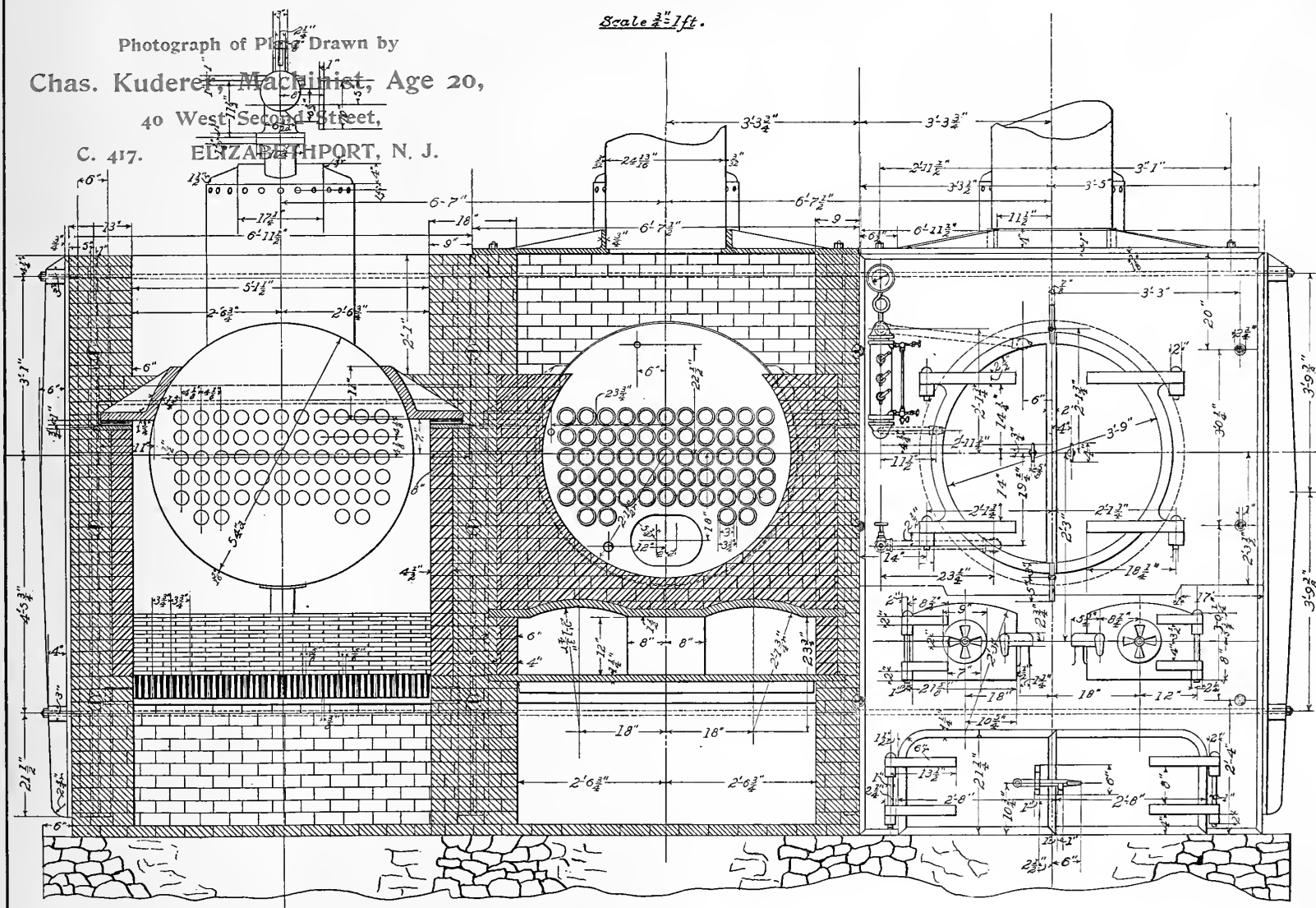
## BOILER SETTING.

Photograph of Plant Drawn by

40 West Second Street,

C. 417.

ELIZABETHPORT, N. J.







# PLATE I

PROBLEM 1: To bisect a straight line.

PROBLEM 2: To draw a perpendicular to a straight line from a given point in that line.  
CASE I

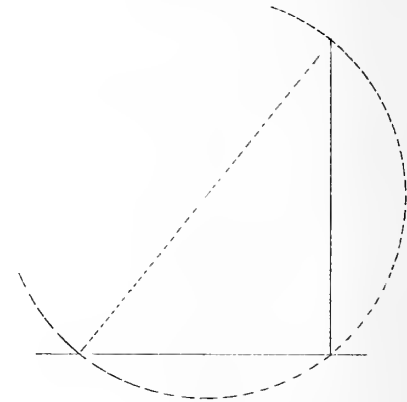
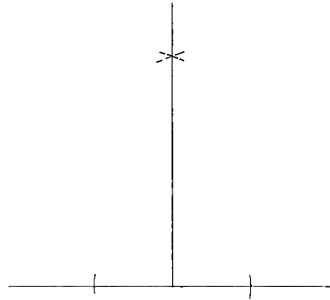
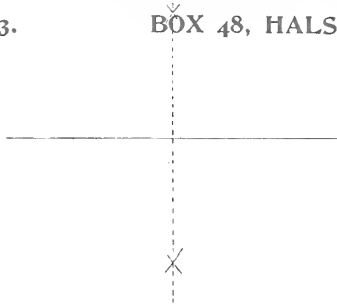
CASE II

Photograph of Plate Drawn by

G. Wiebe, Jr., Age 24,  
Engineer and Fireman,

C. 753.

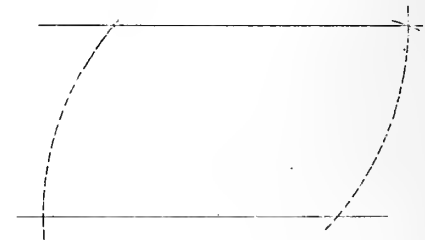
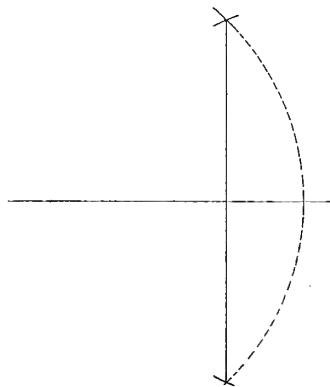
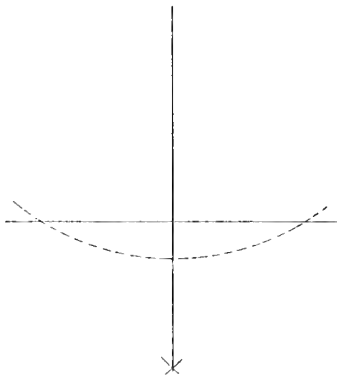
BOX 48, HALSTEAD, KAN.



PROBLEM 3: To draw a perpendicular to a straight line from a point without it.  
CASE I

CASE II

PROBLEM 4: Through a given point to draw a straight line parallel to a given straight line.



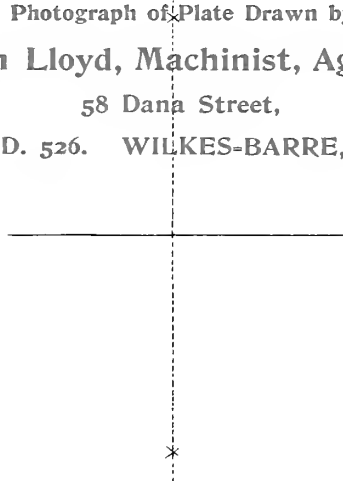






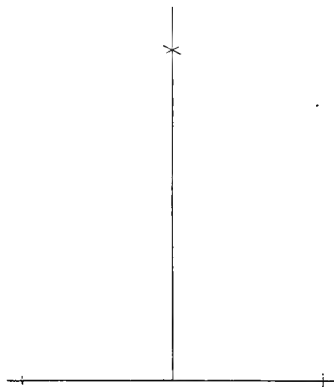
PROBLEM I.—To bisect a given straight line

Photograph of Plate Drawn by  
John Lloyd, Machinist, Age 32,  
58 Dana Street,  
M. D. 526. WILKES-BARRE, PA.

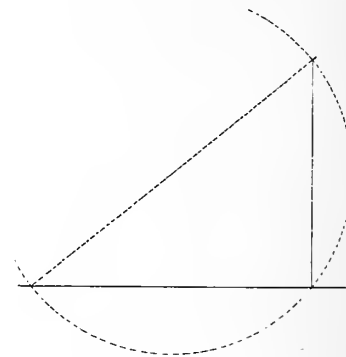


PROBLEM 2.—To draw a perpendicular to a straight line from a given point in that line:

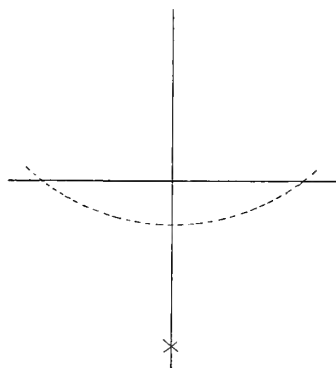
Case I.



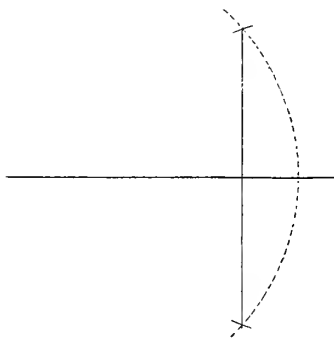
Case II.



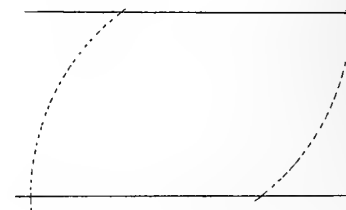
PROBLEM 3.—To draw a perpendicular to a straight line from a given point without it:  
Case I.



Case II.



PROBLEM 4.—Through a given point to draw a straight line parallel to a given straight line

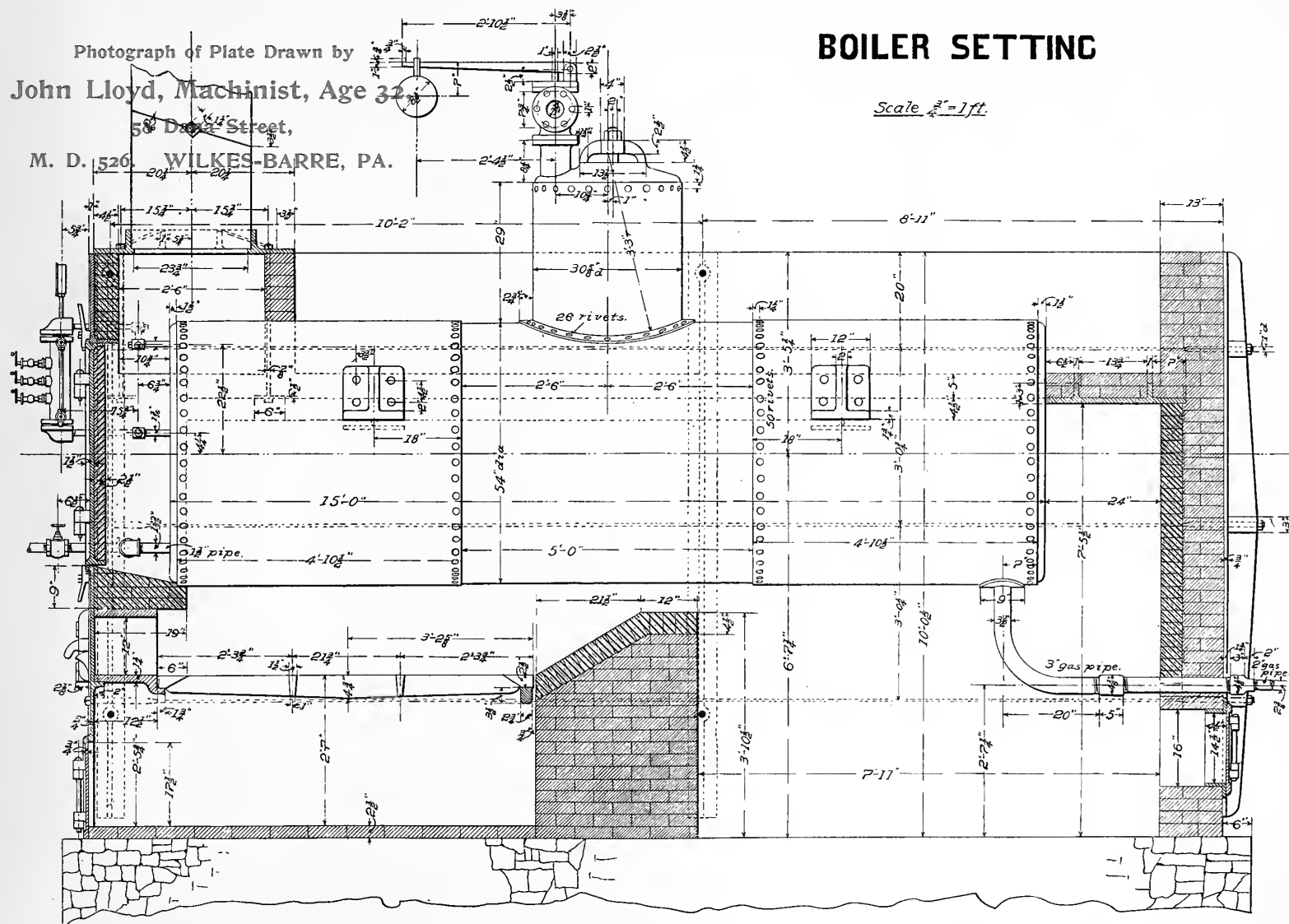




## BOILER SETTING

Scale  $\frac{1}{4}" = 1 \text{ ft.}$

Photograph of Plate Drawn by  
John Lloyd, Machinist, Age 32  
58 Dora Street,  
M. D. 1526. WILKES-BARRE, PA.







PROBLEM 1: To bisect a given straight line:

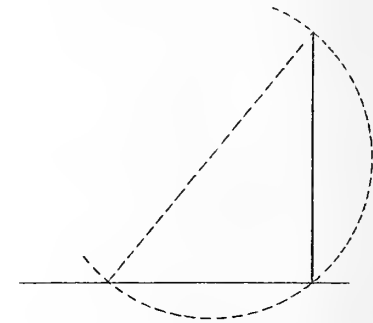
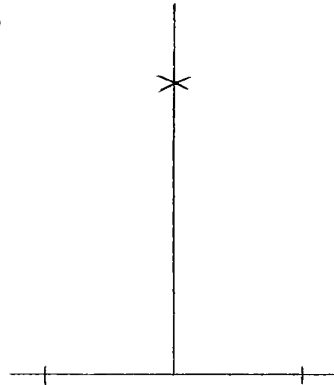
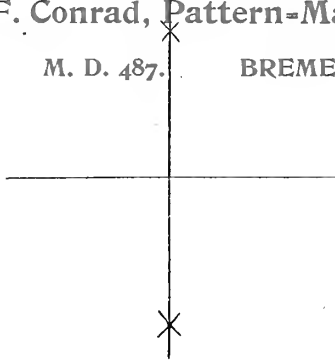
PROBLEM 2: To draw a perpendicular to a straight line from a given point in that line:  
CASE I.

CASE II.

Photograph of Plate Drawn by

E. F. Conrad, Pattern-Maker, Age 36,

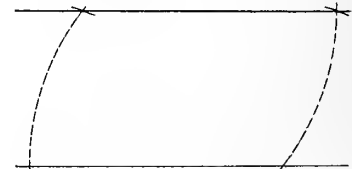
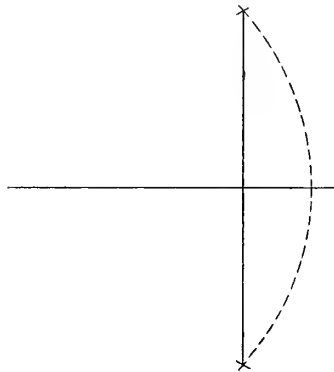
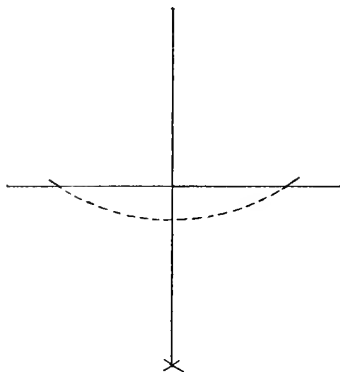
M. D. 487. BREMEN, IND.



PROBLEM 3: To draw a perpendicular to a straight line from a given point without it:  
CASE I.

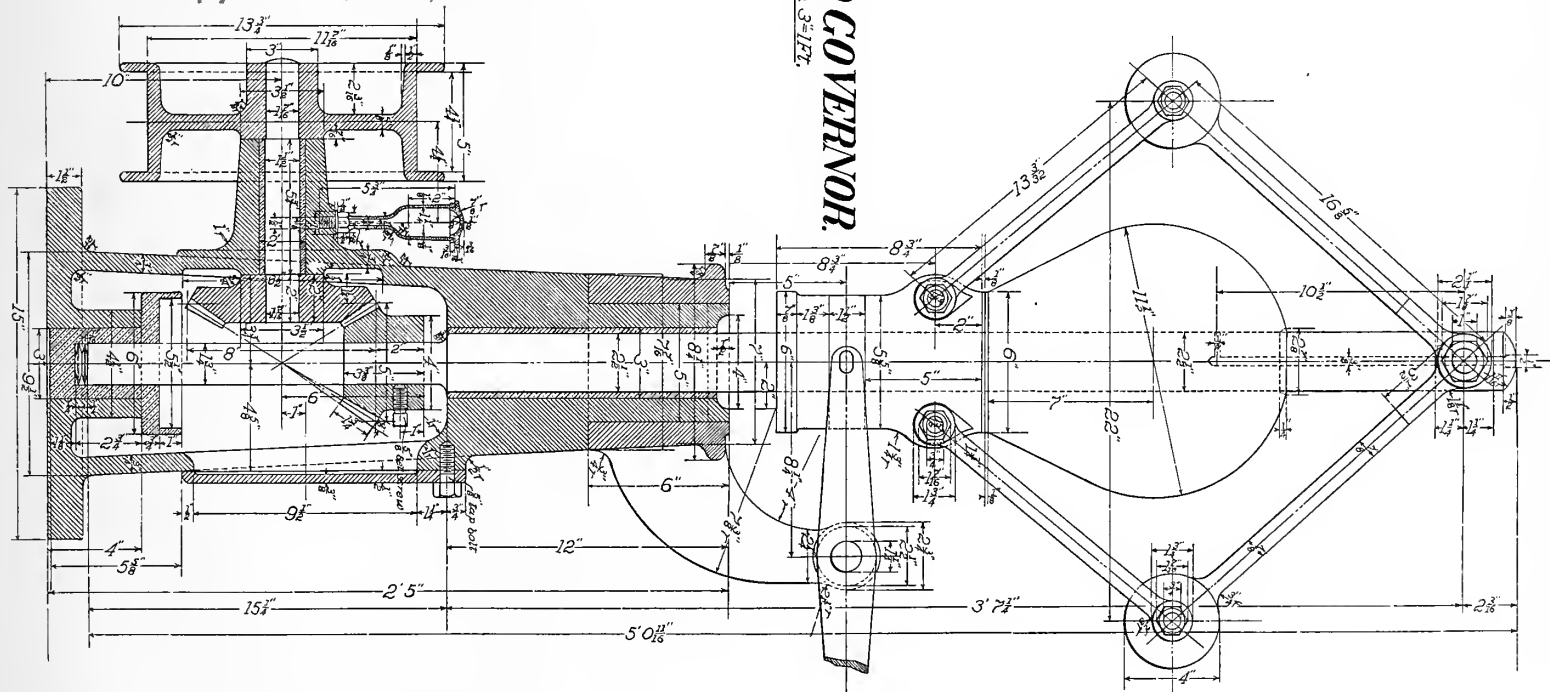
CASE II.

PROBLEM 4: Through a given point to draw a straight line parallel to a given straight line:



Photograph of Plate Drawn by  
**E. F. Conrad, Pattern-Maker, Age 36,**  
**M. D. 487. BREMEN, IND.**

**WEIGHTED GOVERNOR.**  
 Scale  $3\frac{1}{2}''=1''$ .

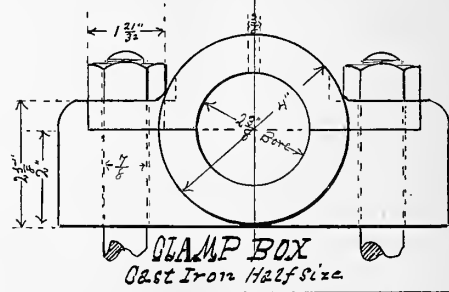
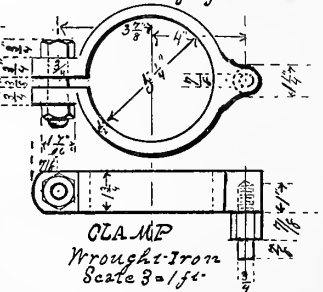
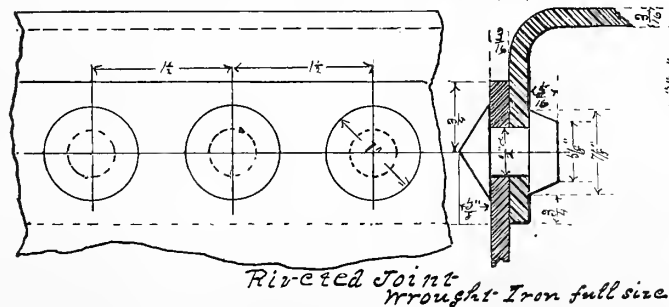
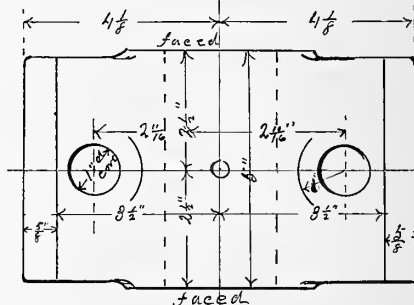
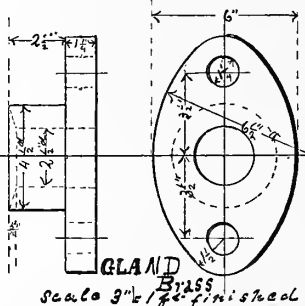
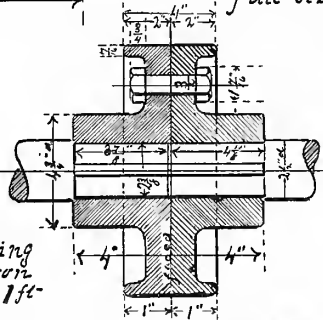
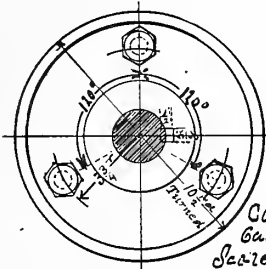
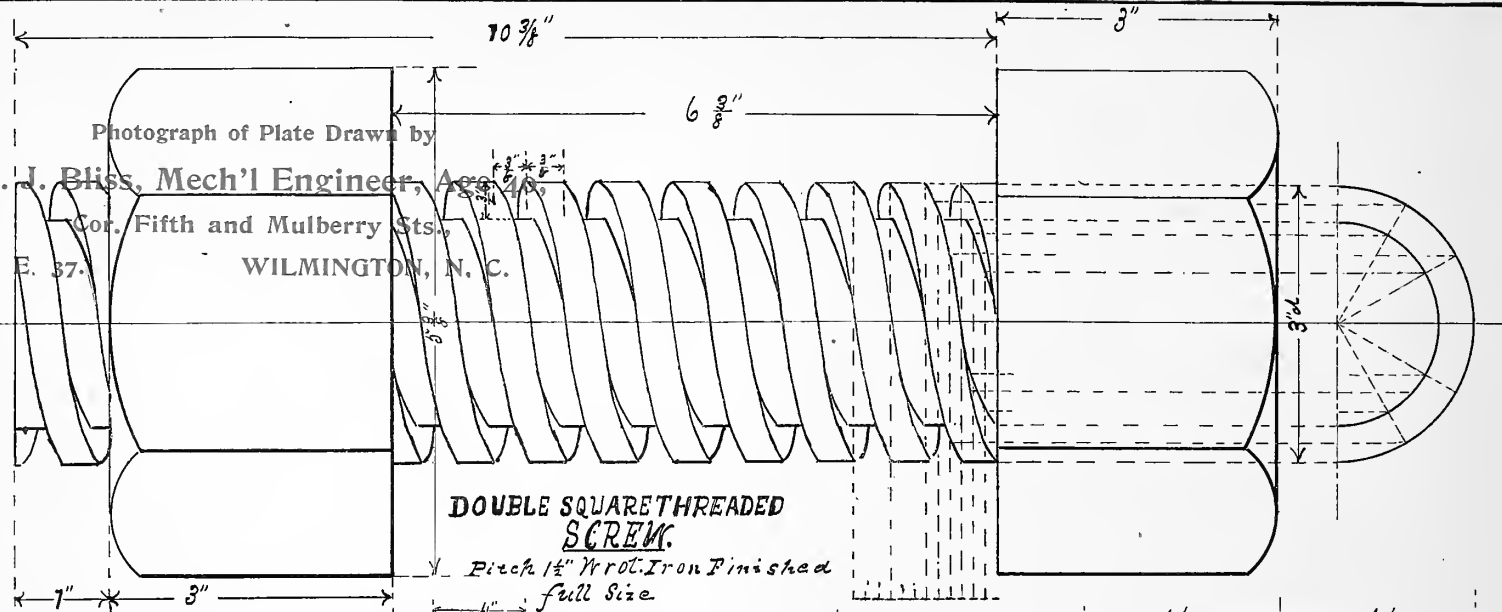






# PLATE XI.

Photograph of Plate Drawn by  
**R. J. Bliss, Mech'l Engineer, Age 21 1/2**  
 Cor. Fifth and Mulberry Sts.,  
 E. 37. WILMINGTON, N. C.



Sept 11-1894

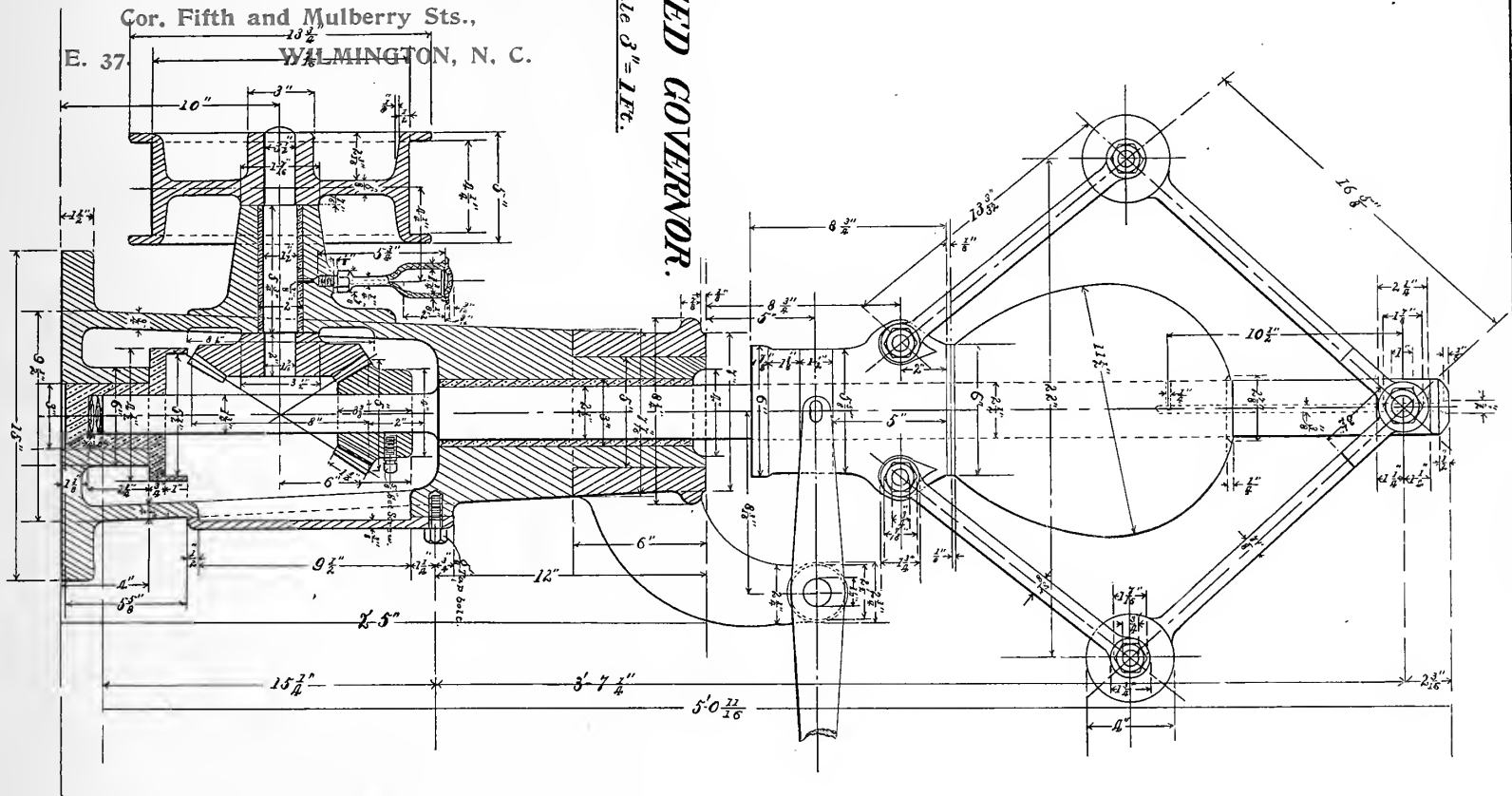
R. J. Bliss Class E 37.



E. 37.

~~WILMINGTON, N. C.~~

Scale  $3'' = 1 \text{ Ft.}$





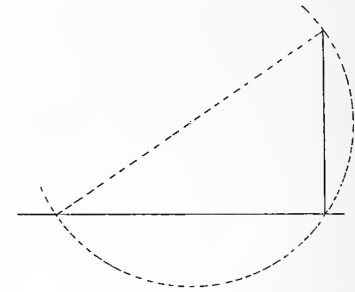
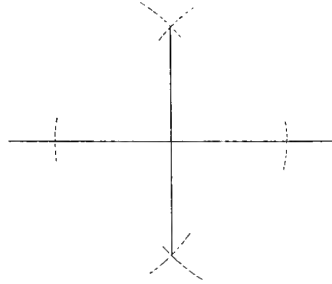
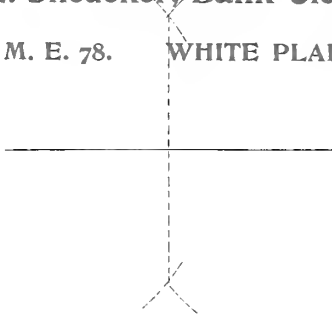


PROBLEM 1: To bisect a straight line.

PROBLEM 2: To draw a perpendicular to a straight line from a given point in that line  
CASE I.

CASE II.

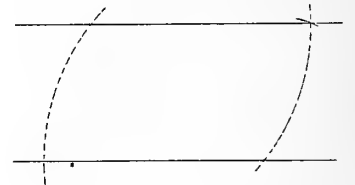
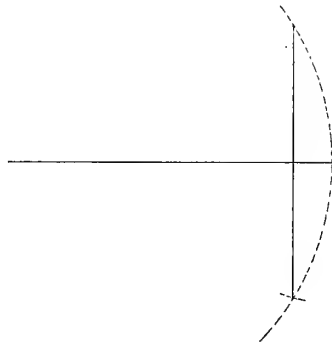
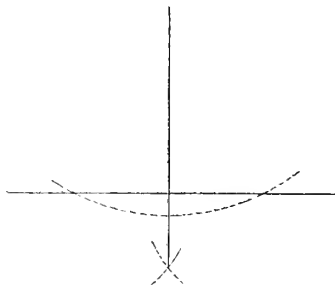
Photograph of Plate Drawn by  
S. E. Snedeker, Bank Clerk, Age 23,  
M. E. 78. WHITE PLAINS, N. Y.



PROBLEM 3: To draw a perpendicular to a straight line from a point without it.  
CASE I.

CASE II.

PROBLEM 4: Through a given point to draw  
a straight line parallel to a given straight line.

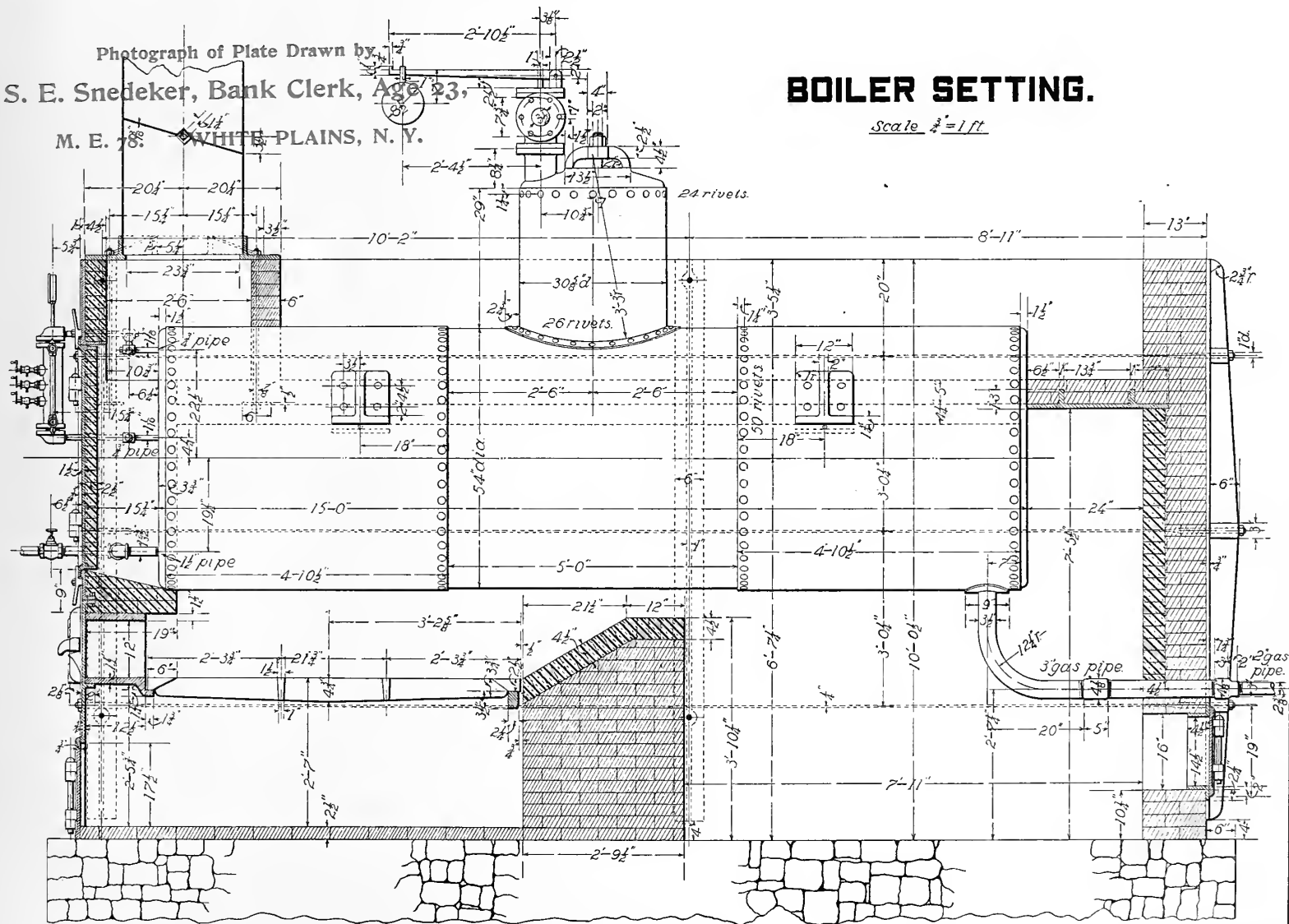


S. E. Snedeker, Bank Clerk, Age 23,

M. E. 78. ~~WHITE PLAINS, N. Y.~~

## BOILER SETTING.

Scale  $\frac{3}{4}'' = 1 \text{ ft.}$

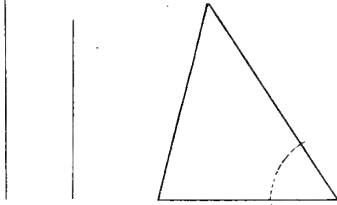




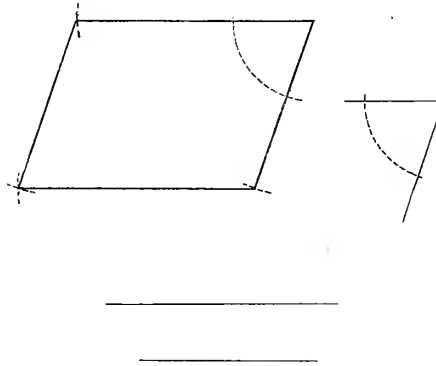


*PROBLEM 10: Two sides and the included angle of a triangle being given, to construct the triangle.*

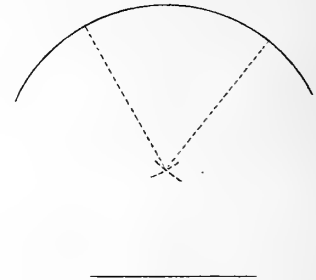
Photograph of Plate Drawn by  
**E. Thompson, Clerk, Age 29,**  
 69 Schaeffer Street,  
 M. E. 1138. BROOKLYN, N. Y.



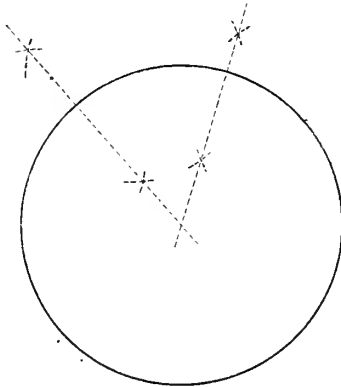
*PROBLEM 11: To draw a parallelogram when the sides and one of the angles are given:*



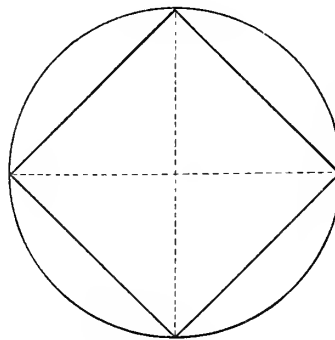
*PROBLEM 12: An arc and its radius being given, to find its centre:*



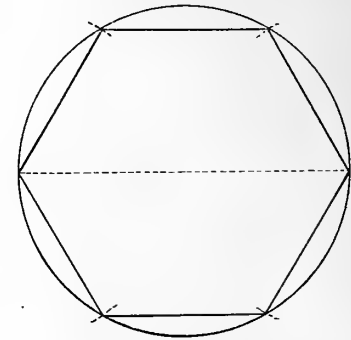
*PROBLEM 13: To pass a circumference through any three points not in the same straight line:*



*PROBLEM 14: To inscribe a square in a given circle:*



*PROBLEM 15: To inscribe a regular hexagon in a given circle:*



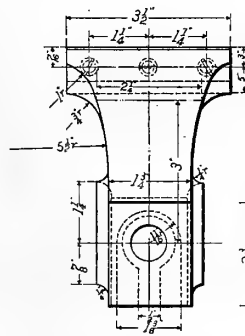
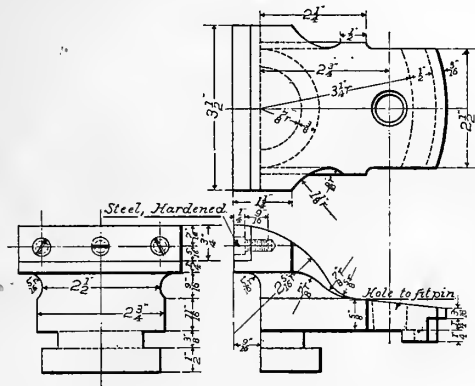
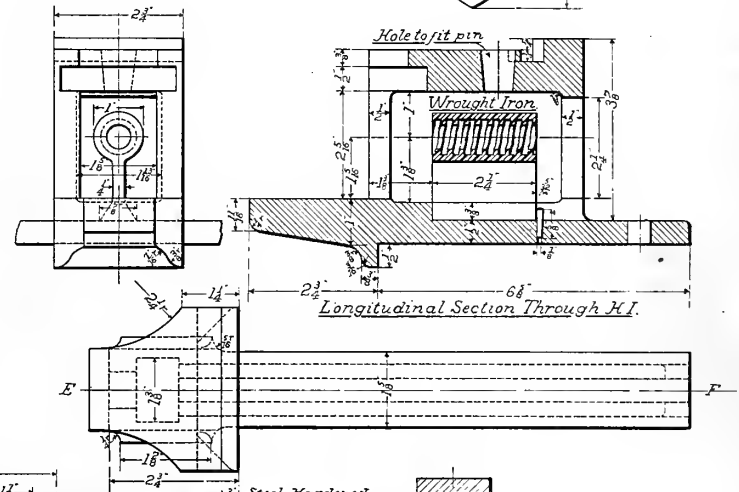
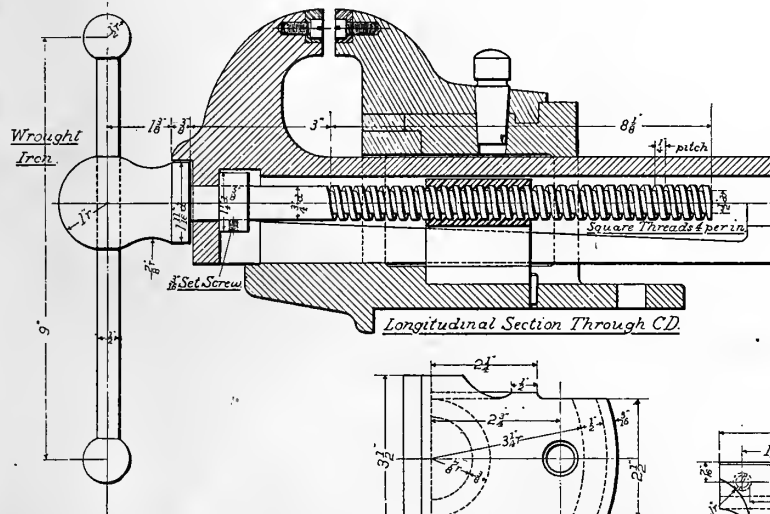
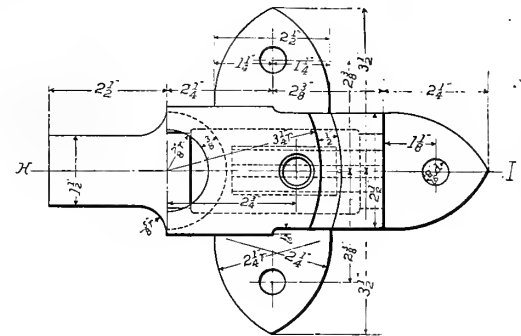
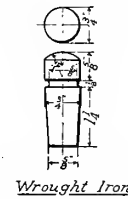
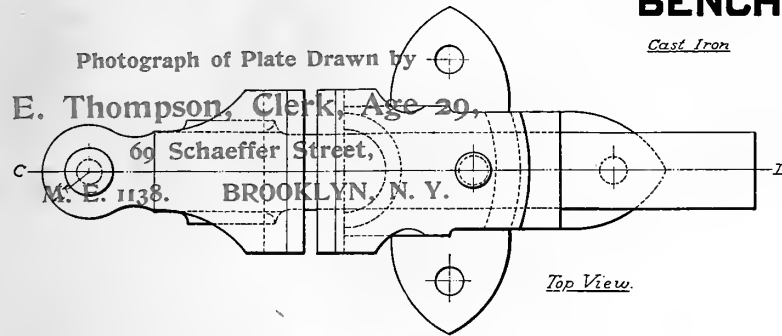


# BENCH VISE.

Photograph of Plate Drawn by  
E. Thompson, Clerk, Age 20,  
69 Schaeffer Street,  
M. E. 1138. BROOKLYN, N. Y.

Cast Iron

Half Size







PROBLEM 1: To bisect a straight line.

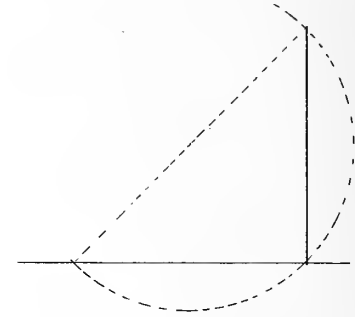
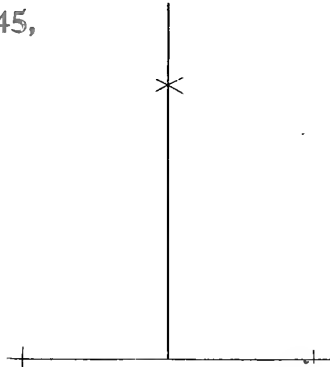
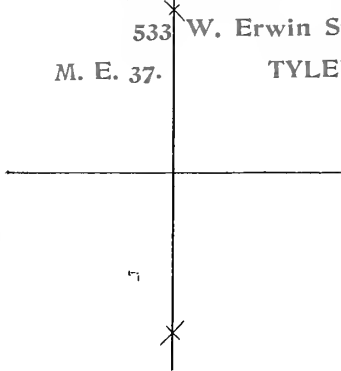
PROBLEM 2: To draw a perpendicular to a straight line from a given point in that line.  
CASE I.

CASE II.

Photograph of Plate Drawn by

A. E. JUDGE, Pres. Electric Light Co., Age 45,

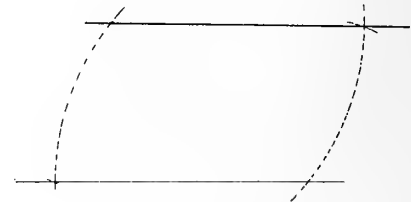
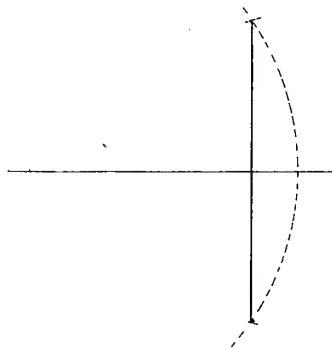
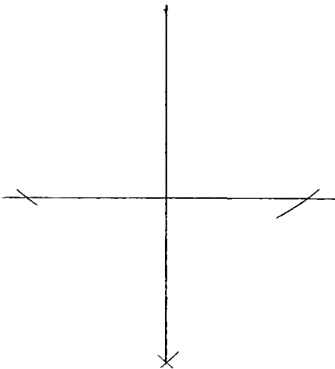
533 W. Erwin Street,  
M. E. 37. TYLER, TEXAS.



PROBLEM 3: To draw a perpendicular to a straight line from a point without it.  
CASE I.

CASE II.

PROBLEM 4: Through a given point to draw a straight line parallel to a given straight line.

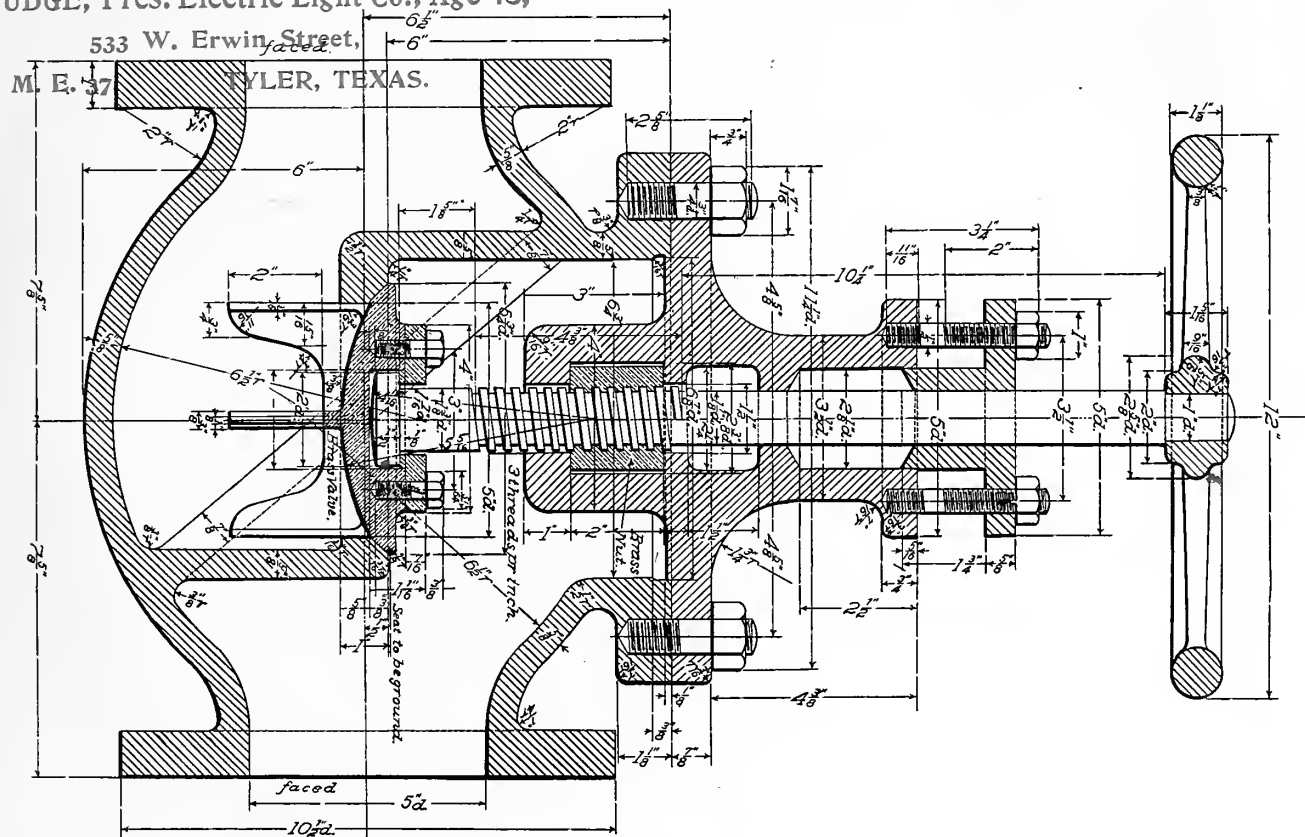


Photograph of Plate Drawn by

A. E. JUDGE, Pres. Electric Light Co., Age 45,

533 W. Erwin Street,

M. E. 37 TYLER, TEXAS.



**SINCH GLOBE VALVE.**

Cast Iron.

Half Size





PROBLEM 1: To bisect a straight line.

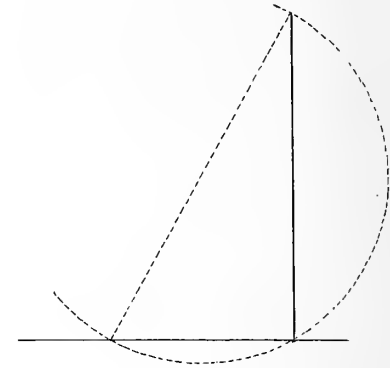
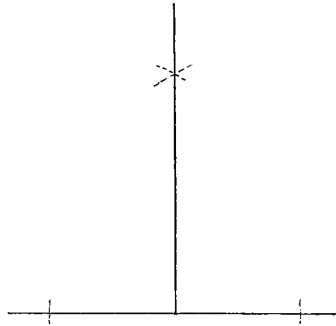
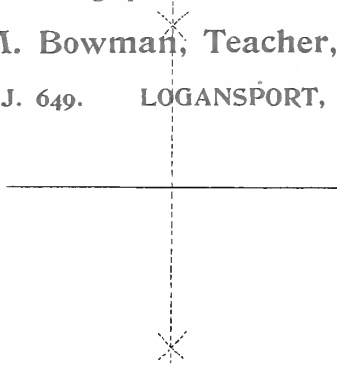
PROBLEM 2: To Draw a perpendicular to a straight line from a given point in that line.  
CASE I.

CASE II

Photograph of Plate Drawn by

F. M. Bowman, Teacher, Age 34,

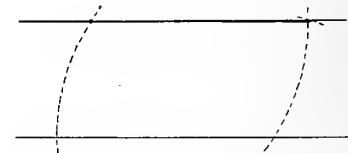
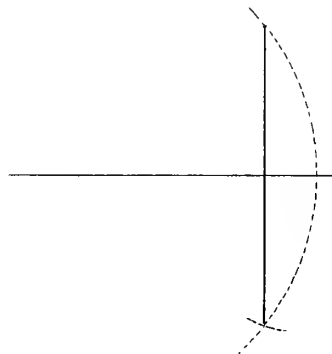
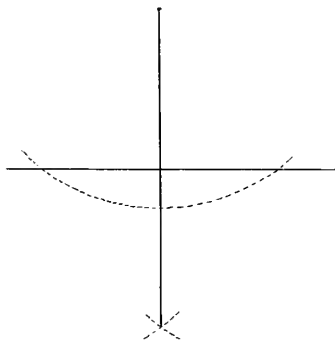
J. 649. LOGANSPOUT, IND.



PROBLEM 3: To draw a perpendicular to a straight line from a point without it  
CASE I.

CASE II.

PROBLEM 4: Through a given point to draw a straight line parallel to a given straight line.

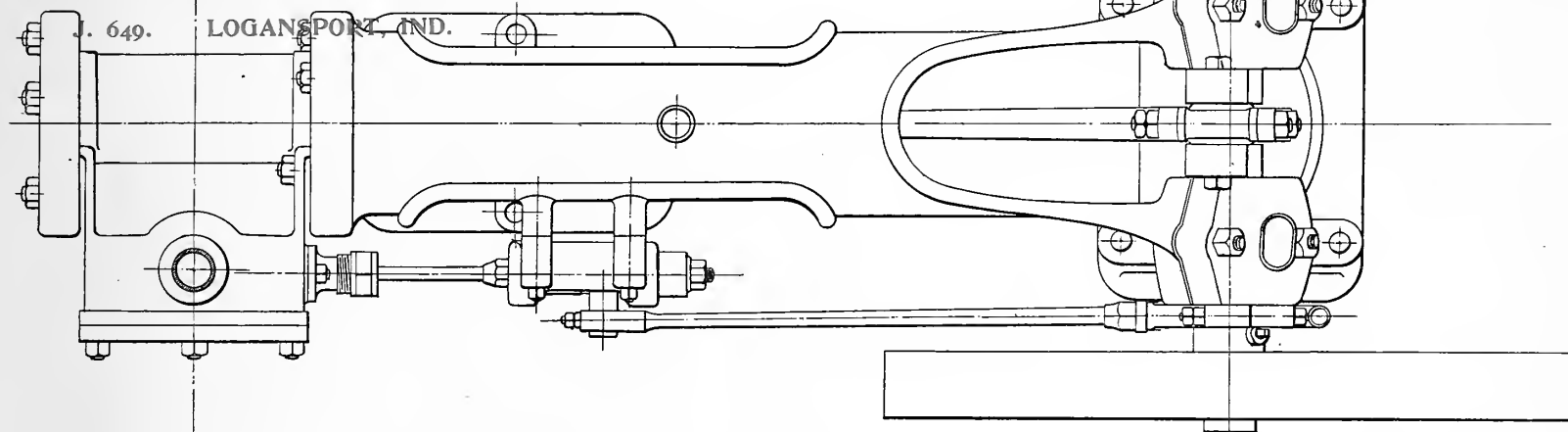




Photograph of Plate Drawn by

F. M. Bowman, Teacher, Age 34,

J. 649. LOGANSPOUT, IND.



**SIX HORSE POWER.  
HORIZONTAL STEAM ENGINE.**

*Scale 1" = 1 ft.*

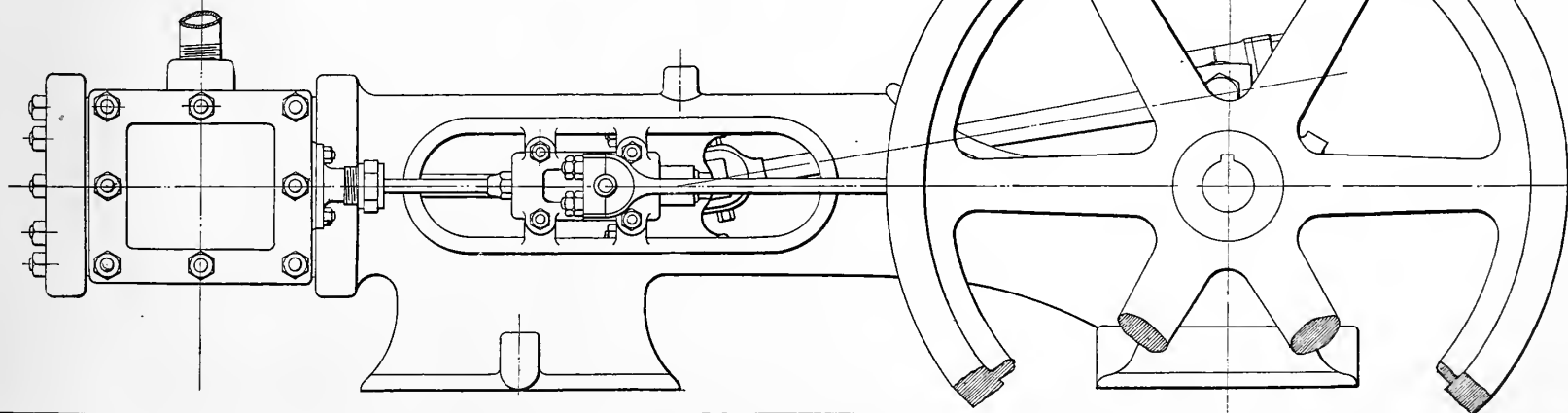






PLATE I.

PROBLEM I: To bisect a straight line

line.

PROBLEM 2: To draw a perpendicular to a straight line from a given point in that line.

CASE I.

CASE II.

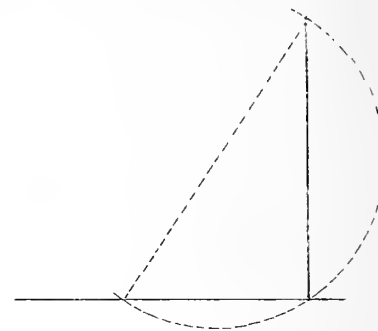
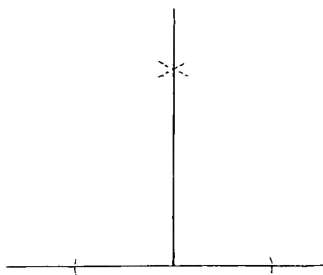
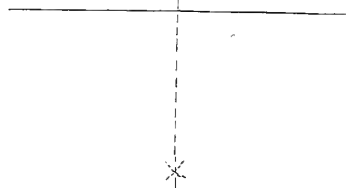
Photograph of Plate Drawn by

Samuel Murray, Fireman, Age 27,

U. S. S. "Oregon," Care of Navy Pay Office,

H. 2044.

SAN FRANCISCO, CAL.

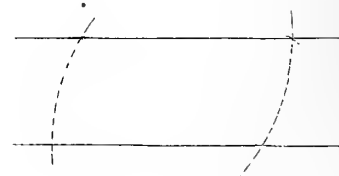
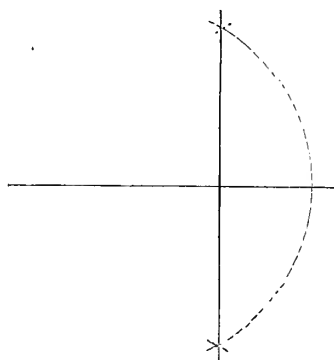
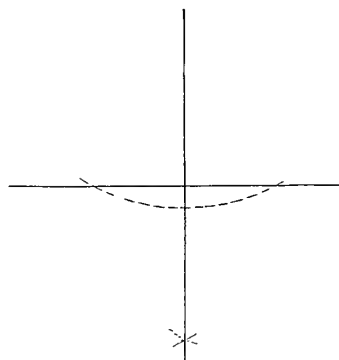


PROBLEM 3: To draw a perpendicular to a straight line from a point without it

CASE I.

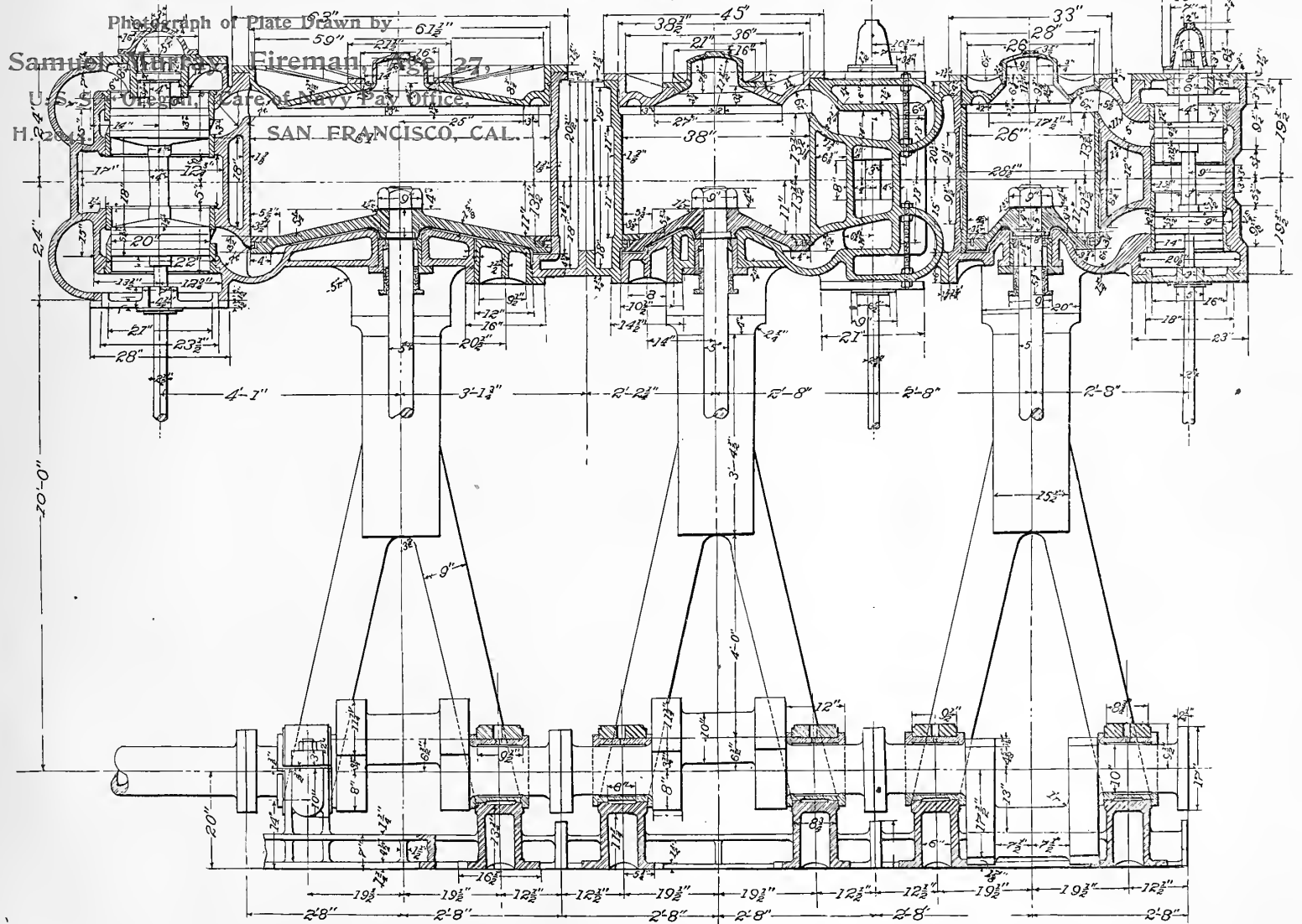
CASE II.

PROBLEM 4: Through a given point to draw a straight line parallel to a given straight line



# TRIPLE EXPANSION ENGINE.

Scale 1"=1 ft.







PROBLEM 1: To bisect a given angle  
GASFL.

PROBLEM 5: To bisect a given angle

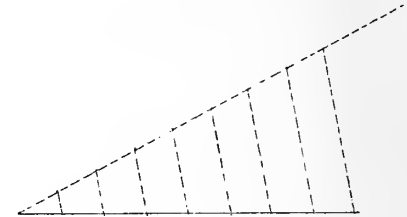
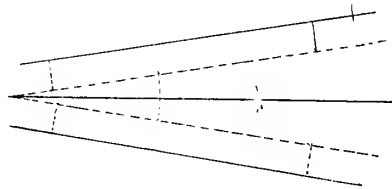
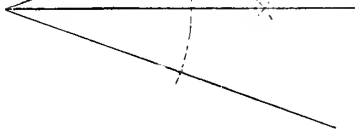
PROBLEM 6: To divide a given straight line into  
any required number of equal parts

Photograph of Plate Drawn by

J. A. Reed, Marine Engineer, Age 27,

41 Natoma Street,

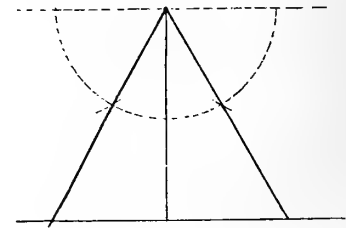
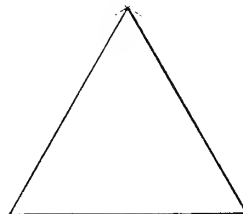
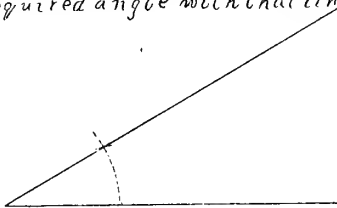
H. 761. SAN FRANCISCO, CAL.



PROBLEM 7: To draw a straight line through any  
given point on a given straight line to make  
any required angle with that line

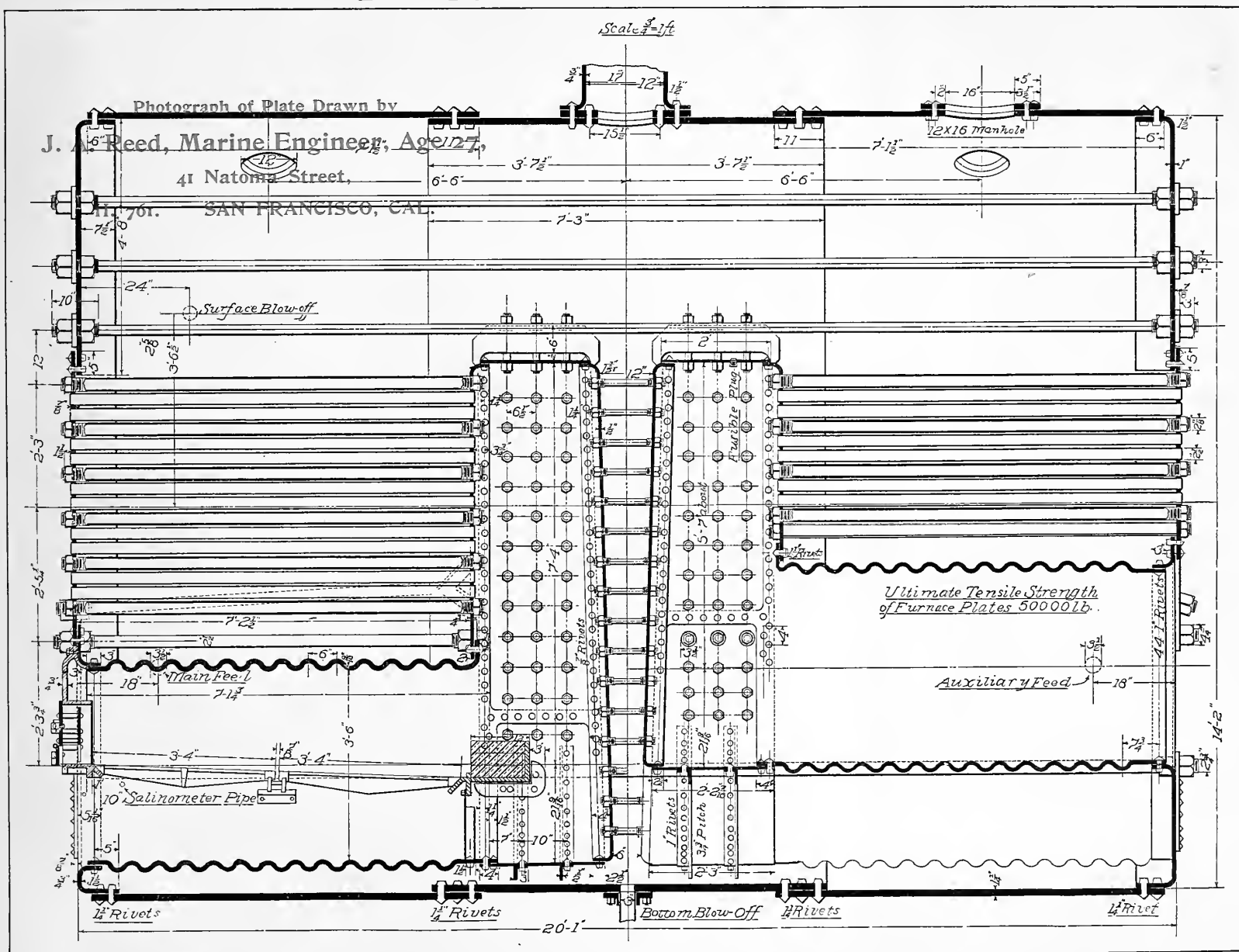
PROBLEM 8: To draw an equilateral triangle,  
one side being given.

PROBLEM 9: The altitude of an equilateral  
triangle being given to draw the triangle





## DOUBLE-ENDED MARINE BOILER.-II



October 27, 1897

JAREED, CLASS N°H-761.





# PLATE V

Problem. 22.— To draw an egg shaped oval

Problem. 23.— To draw an ellipse the diameters being given:

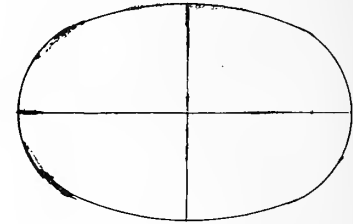
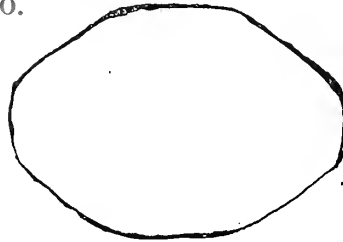
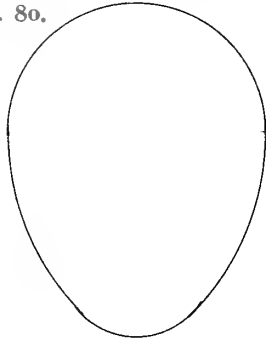
Problem. 24.— To draw an ellipse with circular arcs:

Photograph of Plate Drawn by

R. Hallum, Age 22,  
Hoisting Engineer,

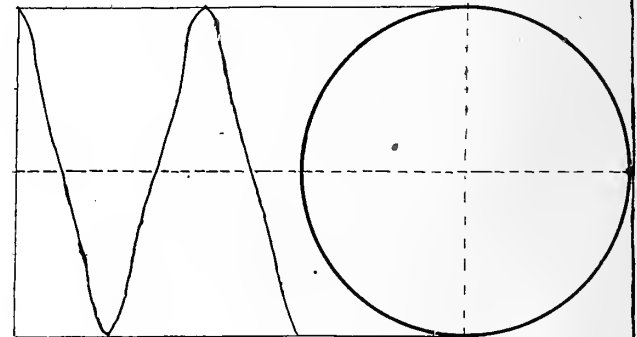
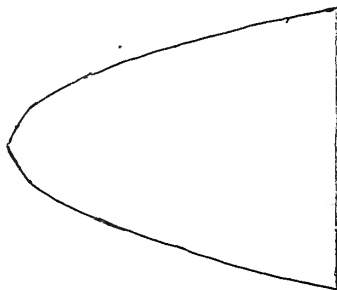
M. 80,

DESLOGE, MO.



Problem. 25.— To draw a parabola the axis and longest double ordinate being given

Problem. 26.— To draw a helix the pitch and the diameter being given

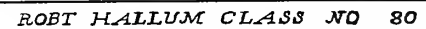


JAN. 9. 1894.

ROBT HALLUM. CLASS. No 80

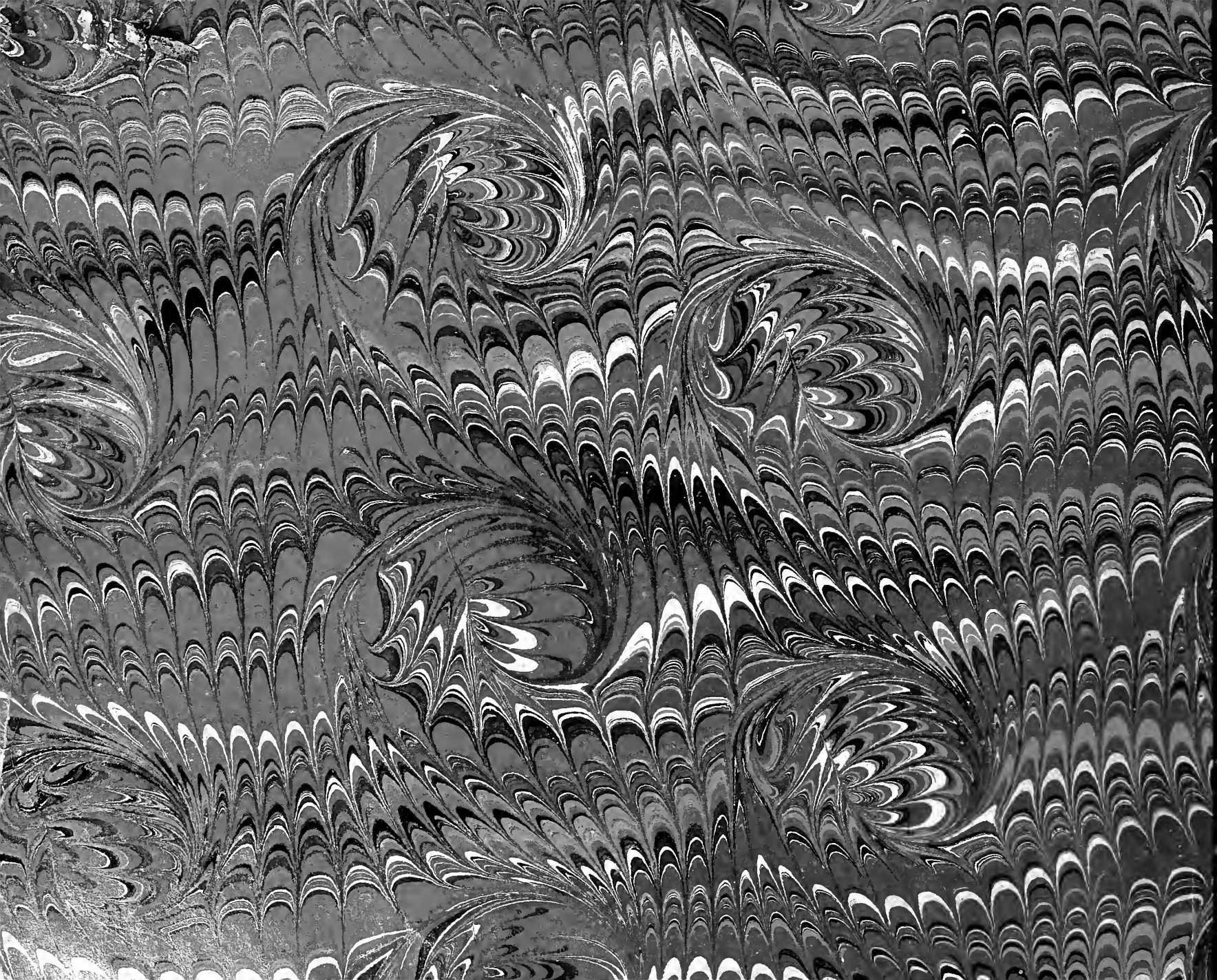
Scale  $3'' = 1 \text{ ft.}$

~~DESLOGE, MO.~~













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